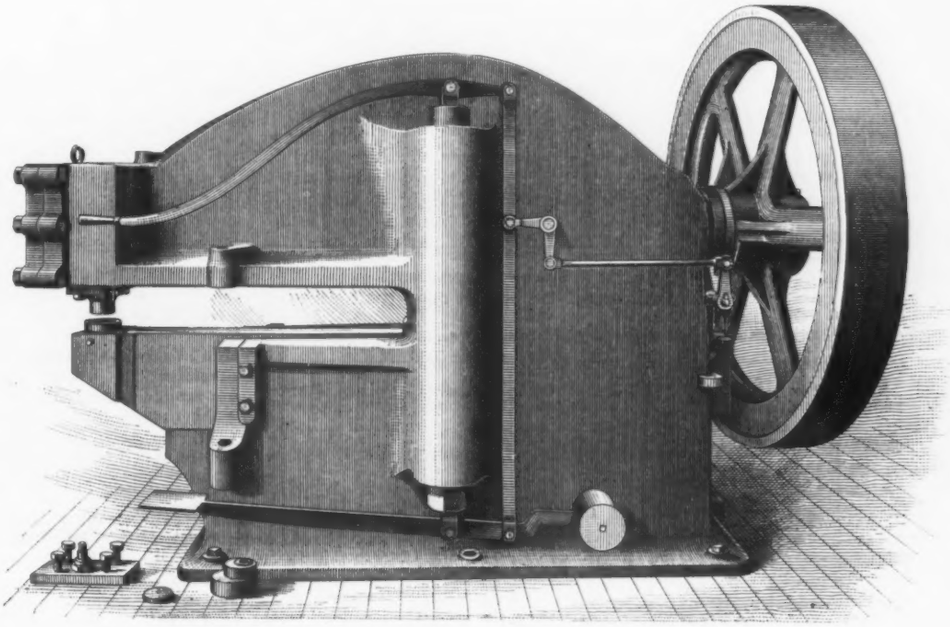
THE IRON AGE

THURSDAY, JULY 21, 1892.

Power Punching Machine.

For doing the heaviest work at a very rapid speed the machine we illustrate was built. It has a stroke of 1½ inches, and will punch to the center of a 100-inch circle. It is powerful enough to punch a 3½-inch hole through a ¾-inch steel plate. The fly wheel revolves freely on the shaft at the rate of 90 revolutions per minute, and when pressure is applied to either the handle bar or foot treadle an automatic clutch is operated to form an almost instantaneous connection between the shaft and fly wheel. If the foot is removed from the treadle as soon as the shaft has started only one stroke will result, the slide carrying the punch stopping automatically at the highest point; the movement becomes continuous if the foot is kept on the treadle. The forward end of the shaft, which is provided with three bearings, carries an eccentric.



POWER PUNCHING MACHINE.

It will be observed that the lower jaw, which is a steel forging, extends through an opening in the frame and is drawn into position by a key. The jaw is dovetailed to the frame, this construction being adopted in order to prevent its raising. Two 4-inch steel screws pass through the enlarged parts of the frame just back of the throat and are intended not to provide additional strength, but to prevent injury to the attendants if the frame should break under unusual strain.

In the front end of the lower jaw is an opening intended to receive the female die. This opening extends so near to the front edge that by properly adjusting the dies holes can be punched in 1½-inch angle irons. The fly wheel is 6 feet in diameter and weighs 3600 pounds, the weight of the machine being 16¾ tons. This punch is made by the Cockburn Barrow & Machine Company of 240 Eleventh street, Jersey City, N. J.

A recent computation respecting absentees from New York City makes it out that upward of 2000 families are at inland resorts, and almost as many on the seashore, while 431 have sailed for Europe.

A Gas Street-Car Motor.

The Connelly Gas Motor will soon be a feature of all the north and west side street railways, except the cable lines, in Chicago. The company, who were incorporated here, thave lately been reorganized and are now under the control of Charles T. Yerkes, the street railway magnate, he having secured a majority of the stock. He has had the purchase in view for some time past and it was in anticipation of it that he procured the passage of several ordinances for the extension of tracks and the laying of cross lines. The present officers and Board of Directors are: President, J. M. Roach; secretary and treasurer, L. S. Owsley; Board of Directors, W. F. Furbeck, Edward Furthmann, R. C. Crawford, J. S. Connelly, T. E. Connelly, J. W. Connelly and Stephen D. May.

The corporation has rights to make and operate the motor in Illinois. Mr. Yerkes has already begun the erection of a building at 197 South Clinton street, where gas motors will be manufactured. The Connellys are at work on engines for him in their shops at Newcastle, Pa.

This invention of J. S. Connelly has been thoroughly tested under the direction of Mr. Yerkes within the last eight months and the results have been so satisfactory that he is now getting ready to use them as feeders to his cable cars and also on horse-car lines which run to the heart of the city. As fast as the motors are manufactured they will be placed in service and it is said to be only a question of time when all horses will be displaced by them. The motor can use naphtha or gas and may be made to attain a speed of 16 miles an hour, though its ordinary maximum speed is placed at 12 miles an hour. It is claimed that it is capable of doing like service at one-third the cost of horses and one-half the cost of electric systems.

Basic Structural Steel.

A German periodical contains an article by Mehrtens of Bromberg, Germany, giving the results of a series of tests made of structural steel ordered for the Fordon bridge across the Vistula. The bridge in question calls for over 10,000 tons of material, and thus far a large proportion thereof has been tested and accepted. Mehrtens gives the results of the tests of 336 blows of basic Bessemer steel made at the Rothe Erde Works, covering about 3100 tons of finished steel. The tests included the working of two specimens taken from the converter previous to the addition of ferromanganese, two tests of steel after the addition of ferromanganese taken during the casting of the ingots, and three sets of tests of the finished material to cover tensile strength, hammering test, cold bending test, hardening test and flattening test. Phosphorus, manganese and carbon were determined in every blow and silicon and sulphur in every tenth blow. Besides, there were taken from every tenth blow five tensile tests of five different ingots. Out of 336 blows thus tested not a single one was rejected. At the steel works three blows did not meet the requirements of the 15 different tests to which the metal was subjected, and in every case it was the tensile strength in one single test bar which was deficient, while all the other 14 tests met the requirements. Two of the three had too low a ductility—15 and 17 per cent.—while the third had too low a tensile strength—38.5 kg. (54,672 pounds). At the rolling mill five heats turned out too low in tensile strength, the figures being 54,335, 54,193, 54,335, 53,482 and 55,331, none of these tests showing ductility lower than 27 per cent. Finally there were three blows worked in a plate mill which did not meet all the tests, the tensile strength being too high in two cases—74,107 and 67,564 pounds—while in the third case the elongation was too low—18.5 per cent. In all these instances,

however, the regular tests were satisfactory, and subsequent additional tests met the requirements, so that there were no rejections whatever. The following table shows the upper and lower limits in all the blows:

Basic Bessemer.	Elastic limit. Lbs. per sq. in.	Tensile strength. Lbs. per sq. in.	Elongation. Per cent.
323 blows structural steel:			
Minimum	35,426	55,758	20.0
Maximum	46,370	62,303	32.5
13 blows rivet steel:			
Minimum	37,124	53,909	25.2
Maximum	40,680	55,331	28.7

By way of comparison, the same figures covering 380 heats of a basic open-hearth steel made at the Dutchoffnungshutte are given:

Basic open hearth.	Elastic limit. Lbs. per sq. in.	Tensile strength. Lbs. per sq. in.	Elongation. Per cent.
368 heats structural steel:			
Minimum	34,138	55,474	20.0
Maximum	50,922	64,008	37.5
12 heats rivet steel:			
Minimum	33,568	51,638	26.0
Maximum	43,668	56,470	35.0

Table I shows the distribution of the different heats in percentages and in number, as referred to the different requirements.

Table I.—Basic Bessemer Structural Steel, 323 Blows.

Elastic limit. Pounds per square inch.	No. of blows.	Per cent.	Tensile strength. Pounds per square inch.	No. of blows.	Per cent.	Elongation. Per cent.	No. of blows.	Per cent.
35,418 to 36,982	16	4.96	55,758 to 56,896	39	12.06	21 to 22	1	0.30
36,982 to 38,404	53	16.40	56,896 to 58,318	128	39.65	22 to 23	.....	.....
38,404 to 39,827	131	40.57	58,318 to 59,741	90	27.87	23 to 24	3	0.92
39,827 to 41,149	72	22.29	59,741 to 61,163	55	17.02	24 to 25	5	1.54
41,149 to 42,672	31	9.58	61,163 to 72,542	11	3.40	25 to 26	24	7.43
42,672 to 44,094	15	4.65				26 to 27	62	19.21
44,094 to 45,517	3	0.93				27 to 28	74	22.92
45,517 to 46,370	2	0.62				28 to 29	77	23 85
						29 to 30	52	16.11
						30 to 31	20	6.19
						31 to 32	4	1.23
						32 to 32.5	1	0.30

Rivet Steel, 13 Blows.

37,124 to 38,404	4	30.77	53,911 to 55,331	13	100	25.2 to 26	4	30.77
38,404 to 39,827	7	53.85				26 to 27	3	23.08
39,827 to 40,679	2	15.38				27 to 28	4	30.77
						28 to 28 7	2	15.38

The chemical analysis of the basic Bessemer showed the following fluctuations in the 336 blows:

Phosphorus	0.031 to 0.085
Manganese	0.26 to 0.79
Sulphur	0.017 to 0.071
Carbon, maximum	0 11
Silicon, maximum	0.02

For phosphorus, manganese and sulphur the percentage of the number of blows from point to point was as shown in Table II.

Table II.—Basic Bessemer Steel.

Phosphorus range.			Manganese range.			Sulphur range.		
Between	No. of blows.	Per cent.	Between	No. of blows.	Per cent.	Between	No. of blows.	Per cent.
0.03 and 0.04	16	4.7	0.2 and 0.3	4	1.1	0.01 and 0.02	1	2.6
0.04 and 0.05	48	14.3	0.3 and 0.4	49	14.6	0.02 and 0.03	5	13.3
0.05 and 0.06	62	18.4	0.4 and 0.5	137	40.7	0.03 and 0.04	11	28.9
0.06 and 0.07	94	28.0	0.5 and 0.6	114	33.9	0.04 and 0.05	11	28.9
0.07 and 0.08	83	24.7	0.6 and 0.7	27	8.3	0.05 and 0.06	7	18.4
0.08 and 0.085	33	9.9	0.7 and 0.8	5	1.4	0.06 and 0.07	3	7.9

Table III.—Basic Open-Hearth Structural Steel, 355 Heats.

Elastic limit. Pounds per square inch.	No. of heats.	Per cent.	Tensile strength. Pounds per square inch.	No. of heats.	Per cent.	Elongation. Per cent.	No. of heats.	Per cent.
34,412 to 35,560	11	2.11	55,758 to 56,896	21	5.91	20.5 to 21	2	0.57
35,560 to 36,982	28	7.89	56,896 to 58,318	99	27 90	21 to 22	3	0.84
36,982 to 38,404	57	15.97	58,318 to 59,741	97	27.32	22 to 23	13	3.66
38,404 to 39,827	66	19.69	59,741 to 61,163	77	21.69	23 to 24	13	3.66
39,827 to 41,149	71	20	61,163 to 62,585	37	10.42	24 to 25	27	7.61
41,149 to 42,672	49	13.80	62,585 to 64,007	24	6.76	25 to 26	27	7.61
42,672 to 44,094	41	11.55				26 to 27	38	10.70
44,094 to 45,517	14	3.93				27 to 28	45	12.68
45 517 to 46,939	7	1.97				28 to 29	44	12.40
46,939	4	1.12				29 to 30	44	12.40
48,361	1	0.28				30 to 31	43	12.11
Missing	6	1.69				31 to 32	23	6.48
						32 to 33	16	4.51
						33 to 34	10	2.81
						34.5	1	0.28
						35.0	3	0.84
						36.0	1	0.28
						36.5	1	0.28
						37.0	1	0.28

Rivet Steel, 11 Heats.

33,568 to 34,138	1	9.08	52,917 to 54,339	3	27.28	24 to 27	5	45.46
34,138 to 35,560	1	9.08	54,339 to 55.761	4	36.36	27 to 28	1	9.08
35,560 to 36,982	..	.....	55,761 to 56,470	4	36.36	28 to 29	1	9.08
36,982 to 38,404	4	36.39				29 to 30	2	18.19
38,404 to 39,827	3	27.29				30 to 30.8	2	18.19
39,827 to 41,149	1	9 08						
41,149 to 43,668	1	9.08						

Table IV.—Basic Open-Hearth Steel.

Phosphorus range.			Carbon range.			Manganese range.			Sulphur range.		
Between.	No. of heats.	Per cent.	Between.	No. of heats.	Per cent.	Between.	No. of heats.	Per cent.	Between.	No. of heats.	Per cent.
0.03 & 0.04	120	32.70	0.10 & 0.11	123	33.61	0.355 & 0.4	11	17.2	0.04 & 0.05	25	44.64
0.04 & 0.05	97	26.50	0.11 & 0.12	102	27.87	0.40 & 0.5	53	82.8	0.05 & 0.06	16	28.58
0.05 & 0 06	136	37.16	0.12 & 0.13	101	27.60				0.06 & 0.07	10	17.86
0.06 & 0.07	13	3.55	0 13 & 0.14	40	10.92				0.07 & 0.08	5	8.92

In testing the basic open-hearth metal, 37 heats out of 366 did not meet the requirements on the first test and supplementary tests were therefore made. On 13 heats these supplementary tests did not suffice, so that the steel had to be rejected, the cause being in the case of four heats "metal too high;" one heat, "insufficient elasticity;" five heats, "inadequate tensile strength:" two heats, "cinder flaws;" one heat, "blow holes." Besides these, one heat was rejected on account of excessive tensile strength—47.8 kg. Table III shows the distribution of the 366 heats accepted as to their mechanical properties..

Table IV covers the results of the chemical investigation. In 366 heats the phosphorus ranged between 0.030 and 0.070, while the carbon fluctuated between 0.10 and 0.14. In 64 heats the range of manganese was 0.355 and 0.500, while in 56 heats the sulphur fluctuated between 0.04 and 0.08.

Mr. Mehrtens asserts that thus far no examination of steel has been carried out in which so large a quantity of metal has been tested in so thorough and comprehensive a manner. He urges that the record shows that there can be no doubt as to the policy of using steel as good as they tested, and that basic Bessemer can compete with basic open hearth. In working in the shops, particularly so ar as straightening, cold bending and flanging is concerned, the steel proved excellent.

On Saturday, July 16, at the works of the Pennsylvania Diamond Drill Company of Birdsboro, Pa., Mr. Brown, the inventor, and Lieutenant Whistler made some experiments with the test cylinder of the Brown segmental wire gun built at that establishment. A charge of 3 pounds 6 ounces of sphero-hexagonal powder was used. A pressure of about 58,000 pounds per square inch was expected. The powder, however, was new, and proved to be of exceptional strength, the crusher gauges recording the enormous pressure of 63,800 pounds per square inch. This is 13,000 pounds per square inch more than will be used in the gun, and 25,000 pounds per square inch more than is now used in the modern high power guns. The cylinder was not injured or enlarged in the slightest degree.

The Rochester, N. Y., Chamber of Commerce will erect a handsome new building, and are looking for a site for it.

The Noble Gas Furnace.

In a description of the plant of the Pacific Rolling Mill Company of Potrero, San Francisco, Cal., we referred to the new gas heating furnace then nearly completed. All the furnaces at the works being in a parallel row at right angles to the mill, it was found when one of the old style direct firing reverberatory furnaces was dismantled to make room for a modern gas furnace that there was no room for gas and air valves. It became necessary to design a furnace which would combine all the merits of the best style of regenerative furnaces and still go into the limited space at command. These requirements are met by the furnace designed by Patrick Noble, superintendent of the Pacific Rolling Mill, the accompanying drawings showing the principal features. It shows the position of the valves directly beneath the hearth and the arrangement of the air and gas flues leading from the valves to the regenerative chambers. Their course, it will be observed, is direct, and gives the least resistance to their easy flow. The fireman now heats 175,000 pounds of cold 16-inch ingots in ten hours, and produces 147,000 pounds of 7-inch blooms, not including clippings. When the charging machine now built is in operation it is expected that the furnace will produce 184,000 pounds of blooms in ten hours. The furnace is served by six Wellman gas producers.

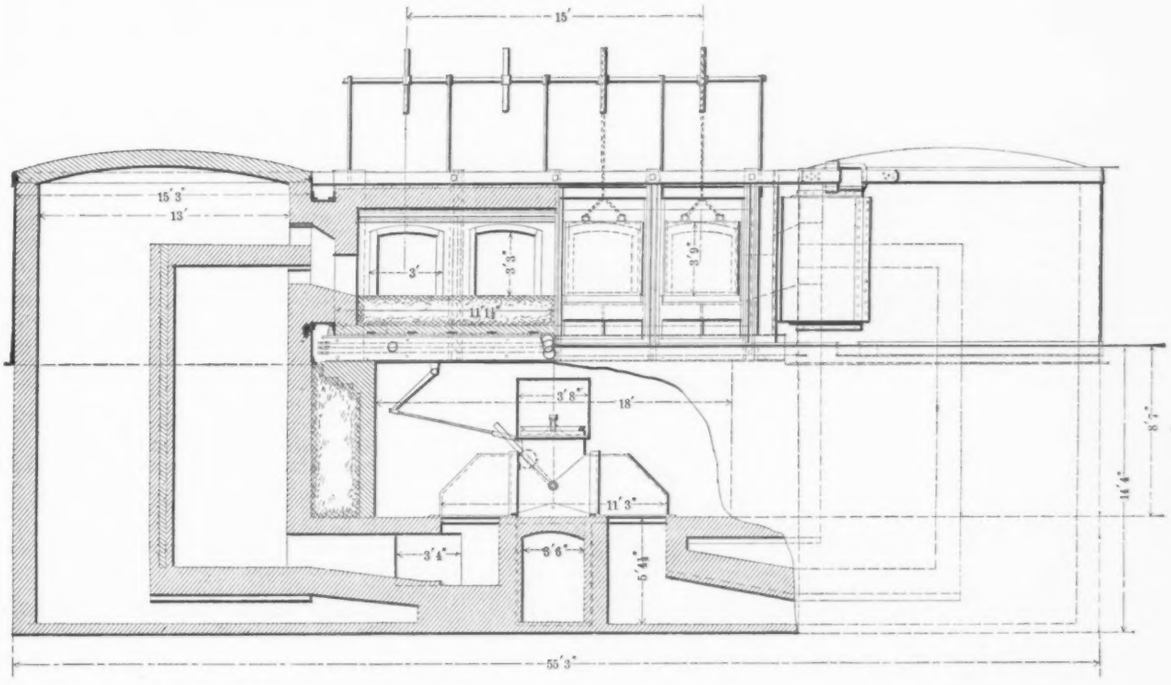


Fig. 1.—Longitudinal Section and Elevation.

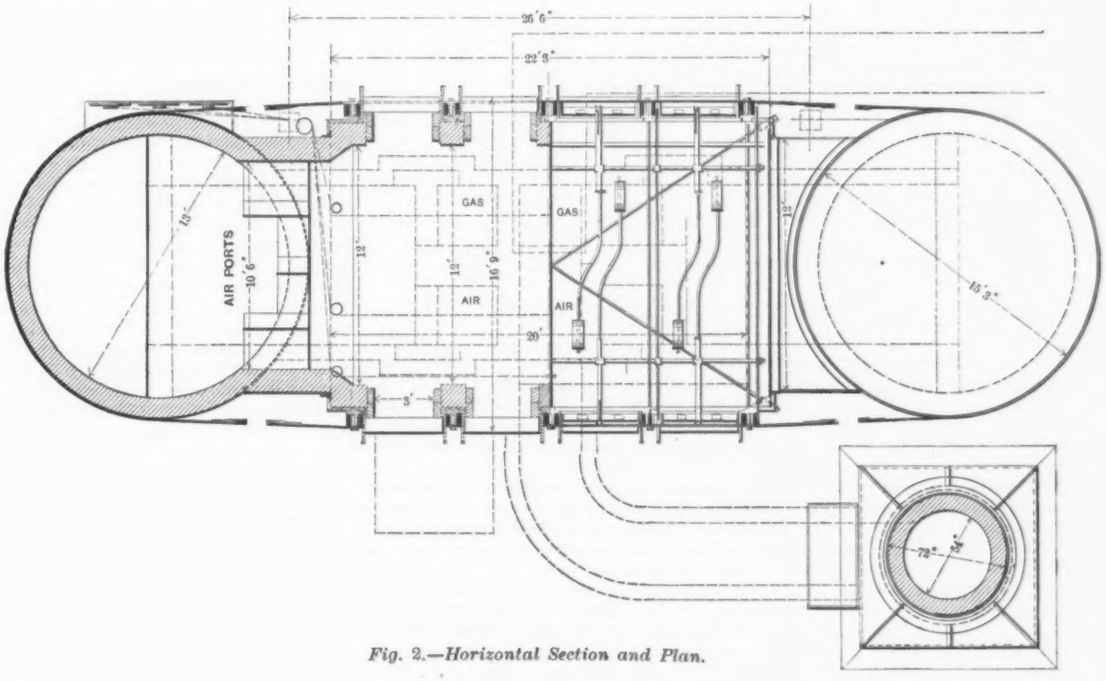


Fig. 2.—Horizontal Section and Plan.

THE NOBLE GAS FURNACE.—HEARTH, 12 × 20.

Shipping Bounties in Italy.

In a recent report of the State Department a paper is printed, written by United States Consul-General Bourn of Rome, which sets forth in abstract the result which has been secured by the shipping bounty system of Italy. The year 1889 is the last year of which a complete account can be given, but during that twelve months $631,053 was paid out in bounties to steamers and sailing vessels, while during the same year $60,462 was paid as a subsidy for the refitting of old vessels. This was a fairly liberal gratuity, but it does not seem to have been in the least productive of desired results. According to our Consul, there were in the year 1883,

of steam and sailing vessels of all classes from one ton upward, 7471 sailing under the Italian flag, having an aggregate tonnage of 973,333 tons. In 1889 the number of vessels had dropped to 6721, and the aggregate of sail and steam tonnage to 824,474 tons. That is, instead of stimulating business, the effect of the bounty was apparently just the reverse. This could not have been due to general conditions of trade, for during the period referred to the English merchant marine made great increases.—*Boston Herald.*

The Talbot Process.

A patent has been recently granted to Benjamin Talbot, superintendent of the Southern Iron Company of Chattanooga, Tenn., which possesses a great deal of interest, since it may solve the question of making steel from Alabama and Tennessee pig irons.

Mr. Talbot's process is a filtration process carried on outside of the furnace or melting chamber, and is based on the fact that if liquid pig iron containing certain impurities is brought into contact with liquid basic slag a reaction occurs, the impurities being transferred from the metal to the slag, while metallic iron is reduced from the slag and enters the iron. Mr. Talbot states that the reaction is very active and in some cases raises the temperature of the basic slag. His method of procedure is as follows: He produces a basic slag consisting of oxide of iron and lime mixed in a regenerative gas furnace, pouring it into a suitable vessel, so that a deep column is maintained. The fluid pig iron is poured from above into this column, through which it sinks. In its passage through the slag the metal is desiliconized and a certain percentage of phosphorus and carbon is also eliminated. His plan is to transfer the metal so purified to the basic open-hearth furnace. When it is desired to desiliconize only without materially eliminating the carbon or phosphorus, Mr. Talbot puts into the slag only so much oxide of iron as will be exhausted by the time it has expelled the silicon from the metal. He proposes to use the waste slag of the basic process by running through it while in its liquid condition the pig iron to be purified.

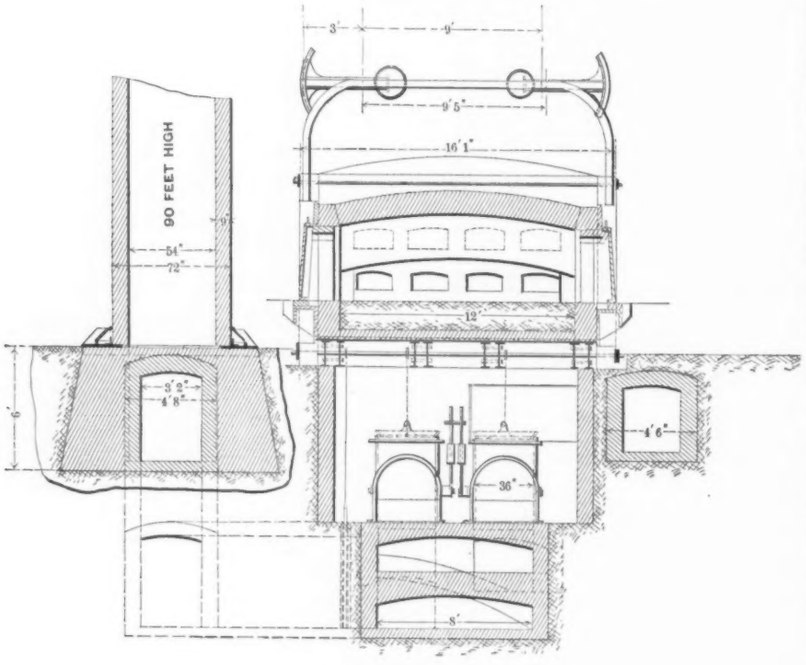


Fig. 3.—Cross Section.

THE NOBLE GAS FURNACE.—HEARTH, 12 × 20.

The Use and Misuse of Petroleum as Fuel.

It is interesting, and frequently amusing, to note the diversity of opinions regarding the value of crude petroleum for fuel purposes, as compared with coal or other solid forms of combustible. Generally these opinions are formed from experience or observation, more or less extensive, but they are not infrequently based on hearsay only, and that, too, with little or no knowledge of the subject on the part of the persons by whom they are expressed. These latter, of course, are hardly worthy of comment, but in reference to such as have actual practical reasons for their ideas, even though they may be in error as to the deductions, the subject is one which merits careful consideration. As the relative value of this fuel is purely a question of fact, and as facts never were, nor will be, either made or modified by opinions, however profound, it follows that the facts alone should be taken into account. We have accurate data as to the calorific values of all combustible elements, and the analyses of the fuels enable us to calculate the exact theoretical value of a given quantity and quality. With the single exception of natural gas, there is no form of fuel whose physical condition is so advantageous for either the necessary handling or for its combustion in the furnace. On the point of adaptability, therefore, it is safe to assume that the verdict would be unanimously in its favor. The only question, then, becomes one of a commercial nature—of dollars and cents.

Considered from the standpoint of economy, the two factors entering into the question are: 1. The market price of the oil, and, 2, the method of its utilization.

The Question of Price.

As regards the first point, the fact that the price is a matter entirely with the producer places it beyond control of the consumer, and consequently, even with the most perfect method of its utilization, the cost may at any time reach a figure which will be practically prohibitory where economy is the consideration. And while there are occasionally cases where the other features of oil burning are more important than the cost, yet they are merely the exceptions, and economy is the great desideratum. Therefore, while the price which it is possible to pay and still be within the bounds of economy may and does vary considerably according to the degree of perfection attained in the handling and combustion of the oil, there is a limit which cannot be passed without sacrificing the main object of its use. What that limit is may be safely calculated, provided the relative costs of oil and coal be figured from the actual conditions on a uniform basis of work done by each. It is obviously misleading to consider only the cost respectively of oil and coal for a given time, and assume the results from their use to be the same. The latter quantity should be just as carefully and accurately ascertained as the item of outlay, and the cost can then be figured per unit of result. Of course the price of coal is the standard of value with which the comparison of costs must be made; and the commercial grade which, upon comparison of price with efficiency, shows the best results—not per ton, but per dollar—should be the one selected as such standard. By way of illustration we may assume the evaporative value of the grade of coal selected to be 8 pounds water from and at 212° F. per pound of coal, and the price of such coal to be $3 per ton (including cost of putting into the bin). The number of heat units utilized would be 966 (the latent heat of vaporization) × 8 pounds = 7728. As the calorific value of such coal would be about 14,000 heat units per pound of coal, we find that there has been a total useful effect of $\frac{7728}{14000} = 55.2$ per cent. only. The total quantity of water evaporated per ton of 2000 pounds would be 16,000 pounds at a cost of $3 plus the wages of firemen and such other labor as was necessary. These incidental expenses must be taken into account in making the comparison, as they vary considerably according to the fuel used, and the larger the scale of operations the greater the variation of this item. As, however, the present illustration has to do only with the actual cost of the two fuels, the costs incidental to their use may be considered later on. If then the coal with a useful efficiency of 55.2 per cent. of its total heating capacity costs $3 to evaporate 16,000 pounds of water, and we assume the same efficiency for oil, we can calculate exactly the cost of the required quantity of the latter fuel to produce the same evaporation, thereby establishing its comparative value on the price basis, after which the comparison of incidental costs may be considered. The calorific value of oil may be taken as about 20,475 heat units, and 55.2 per cent of this amount will be 11,303 units, which divided by the coefficient of vaporization gives the number of pounds water which will be evaporated from and at 212° F. to be $\frac{11303}{966} =$ 11.7 pounds water per pound of oil. As a gallon of oil weighing 7.27 pounds (specific gravity 0.87) costs, say, 1.6 cents, then $3 ÷ 1.6 cents = 187.5 gallons is the equivalent in price of 1 ton of coal, as above, and as 187.5 gallons × 7.27 pounds per gallon = 1363.125 pounds, then 1363.125 × 11.7 (its evaporative value, as above) = 15,948.56 pounds water evaporated per $3 worth of oil. This showing, then, is that oil at 1.6 cents per gallon is practically equal in cost to coal at $3 per ton, both delivered at point of consumption, on the purely arbitrary assumption, however, that the possible useful efficiency of the oil as a percentage of its calorific value is no greater than that of the coal. Of course it will be understood that grate firing of the latter is

alluded to in the comparison, and that no reference is made to its conversion into fuel gas by the producer or other more recent processes. In order to estimate the aggregate of the several items entering into the incidental expense account, chargeable against the fuels respectively, it will be well to consider a steam plant on a moderately large scale — say, 1000 horse-power, nominal rating—for ten hours per day. The quantity of coal required, at 30 pounds water per horse-power per hour, would be $\frac{30}{8} = 3.75$ pounds coal per horse-power per hour, and 3.75 × 1000 horse-power × 10 hours = 37,500 pounds per day, or 18¾ tons, costing $56.25. Say the plant is composed of a battery of ten boilers of 100 horse-power each. There will be required not less than five firemen and one water tender, besides three laborers for wheeling coal and ashes. This refuse, amounting to about 4 tons, will have to be hauled by team in the majority of cases, at a cost of, say, 50 cents per ton. The above are the most important items, and are all that need be considered. We have then:

5 firemen, at $2.25 per day	$11.25	
1 water tender, at $2.50 per day	2.50	
3 laborers, at $1.75 per day	5.25	
4 tons ashes, at 50 cents per ton	2.00	
		$21.00
18¾ tons coal, at $3 per ton		56.25
Total cost of coal and labor per day for 1000 horse-power		$77.25

Let us now ascertain the cost of the same duty by the use of oil fuel upon the basis of the same percentage of efficiency as used above. We have then $\frac{30}{11.7} = 2.564$ pounds oil per horse-power per hour, and 2.564 × 1000 horse-power × 10 hours = 25,640 pounds, or $\frac{25,640}{7.27} = 3526.8$ gallons per day, costing, at 1.6 cents per gallon, $56.43, or within 18 cents of the cost of coal. But here the equality ceases, and it is in the matter of incidental expenses only that we must look for the economy, if any, to be gained by the use of oil. As it is used directly from the storage tank and handled by mechanical means, automatic in their operation, and as there is no hand firing to be done, and no ashes or refuse to remove, the only item in the expense schedule for coal which will apply on the oil account is that of one water tender at $2.50 per day. Of course the work of pumping the oil from storage tanks to burners requires the use of either steam or belt power, but it is so inconsiderable that it need not be taken into account as an item of expense, or it may be included as part of the total steam consumption necessary for the operation of the system. Whether compressed air or direct steam is used in the burners for vaporizing the oil, we may safely estimate this quantity at not over 2½ per cent. of the total evaporation by the boiler, and its cost would therefore be in the form of a percentage of the aggregate of all other items, to be added as the final item. We have then the following:

One water tender and first-class fireman, at $2.50 per day	$2.50
3526.8 gallons oil, at 1.6 cents	56.43
Total	$58.93
Add 2½ per cent. for steam used for burners, &c	$1.47
Total cost for oil and labor per day for 1,000 horse-power	60.40
Cost for coal firing, as above	77.25
Saving by use of oil is, therefore	$16.85

or 21.81 per cent.

This, however, is not the maximum possible saving; as the item of attendance charged against the 1000 horse-power would not be increased for four times this duty—it is safe to say that one man can easily look after the burners and tend water for 4000 horse-power, and still have very little to do in the way of actual work—the duty being one requiring watchfulness and care, and but little else. For coal firing, from the fact that the fireroom is necessarily more or less obstructed by the fuel, and by the firemen in working their fires, it would be impossible for one man to give proper supervision to fires, steam and water, and at least two would be necessary for this duty. The cost then for coal firing for 4000 horse-power will be [($77.25 − $2.50) × 4] + ($2.50 × 2) = $304, and for oil [($60.40 − $2.50) × 4] + $2.50 = $234.10—the difference being $69.90, or 23 per cent. less for oil, as compared with 21.81 per cent., as in case of 1000 horse-power. Of course such large plants are exceptional, and this illustration cannot be considered as applicable to ordinary practice. According to this showing, however, the advantage of economy is clearly in favor of oil, and if the assumed percentage of efficiency is not overrating the facts, the deductions are correct. This point alone, then, is the crucial one in determining the comparative value of petroleum as fuel, and it becomes a question of the degree of perfection attained by the method of utilization—provided, of course, the relative price of the oil does not exceed the figure assumed in the foregoing calculations.

The Method of Utilization.

To many—it might be said a majority of persons—the use of oil fuel resolves itself into a question as to which of the legion of so-called systems (which is simply another name for burners) is the best, and, that point decided, the value of oil fuel, and not of the burner, is decided by them according to the results obtained. Now, as a matter of fact, we might say that all of the many burners in the market are good burners—that is, they accomplish what is required of a burner, which is to vaporize the oil by means of a steam or compressed air jet, and thereby supply it in the proper condition for the initial combustion. But this is a very small part of what must be done in order to obtain the largest percentage of useful effect from the quantity of oil consumed. Almost any one of these burners, if supplemented by the proper means of continuing the combustion and utilizing the heat generated, is capable of giving the most satisfactory results—in other words, the problem is not one of the best burner, but of a properly-designed furnace. This question is one which, strangely enough, considering its importance, does not seem to have received the attention of furnace engineers—at least not in reference to its general application, although in some special cases the right kind of talent has been employed, and as a rule the results have been more or less satisfactory. As in all other branches of furnace engineering, a pretty thorough knowledge of the laws of combustion is necessary, as without it all attempts partake of the nature of guesswork; and, even though the out come of it may be an eminent success, it must be considered in the light of a fortunate accident, for the reason that it is manifestly impossible to lay plans when the requirements due to existing circumstances and conditions are unknown. In the present connection the problem involved is purely one of combustion as a cause and utilization as an effect. Let us now state it as tersely and explicitly as possible: Given a certain quantity of fuel of known chemical composition and physical condition, from the combustion of which to realize in useful effect the largest possible percentage of its theoretical calorific value.

A knowledge of the chemical constituents, as shown by analysis, enables us to calculate the exact heating power or calorific value, which we find to be, in the case of a Pennsylvania oil previously referred to, 20,475 heat units per pound. The physical condition is one of such extreme fluidity that when vaporized by means of an air or steam jet it becomes so finely subdivided as to resemble smoke. This is the quality *par excellence* which should enable us to effect the most perfect admixture of the combustible elements of the liquid with the necessary equivalent of atmospheric oxygen, to cause the initial combustion at the point of ignition and to make the completion of combustion to carbonic acid and water purely a matter of mechanical manipulation of the air supply. It would be well at this point to consider some instances of the misuse of oil—that is, not by reference to individual cases, but the kinds of misuse which are so common as to become the rule rather than the exception. First is the case of one or more burners placed in the fire doors of an ordinary boiler front, the grate being covered with fire brick or some other protective material. With an unlimited air admission from the ash pit, without any attempt at regulation, the necessity for any more careful air supply is not realized, owing to the fact that the smoke stack shows no smoke, and there must, therefore, be perfect combustion of the oil (?). The inference, as a matter of course, is that the burner (or "system," as it is usually styled) is a good one. This may be considered one of the most crude, wasteful and destructive of all methods of oil burning, as can be readily understood by noting carefully the volume and quality of the flame and the consumption of oil in proportion to the duty performed. Upon looking into the furnace though any convenient peep hole which will not permit the passage of a sufficient quantity of air to affect the character of the flame (and a surprisingly small amount will do this) the most noticeable feature observed will be the brilliant whiteness and great intensity of the entire mass of flame, almost from the very nozzle of the burner—also its high velocity. Generally, too, the flame will be found to impinge directly against the bottom of the boiler, above the bridge wall. It will also be noted that the mass of incandescent brick work in the boiler setting is comparatively quite small, though of high intensity. It is confined almost entirely to the portion of the furnace near the bridge wall, and extends but a very short distance beyond the latter, as, while it is not always possible to notice the length of flame, it will generally be found very short, and the effect of the combustion is practically confined to the limit of its extent.

(To be concluded.)

Consolidation of Brass Interests.—Somewhat premature announcements have been made in the Waterbury papers relating to a consolidation of brass and copper interests of the Naugatuck Valley, While the matter has been talked of more or less during the past decade, it has been more earnestly discussed during the last 12 months. But the matter has not yet progressed to a point where a consolidation is even probable. In fact, at the present time the chances are against its consummation.

The steam yacht Linta, owned by Walter Luttgen of August Belmont & Co., New York, has been launched from the works of Charles L. Seabury & Co., Nyack on Hudson, N.Y. The dimensions of the Linta are: Length over all 85 feet, length on water line 72 feet, beam 14 feet, draft 5 feet. The machinery consists of a Seabury compound engine and a Seabury safety water tube boiler. The yacht is also supplied with an electric light plant for lighting the boat.

The South Wing of the Watervliet Gun Shops.

In *The Iron Age* of July 30, 1891, we described and fully illustrated the gun shops at the Watervliet Arsenal, also the 12-inch breech-loading rifle and its barbette carriage. At that time we also presented a plan showing the arrangement of machinery in the north wing and said that "contracts were recently let for the building of the south wing of the gun factory, which will double the capacity of the establishment and make it, when fully equipped, perhaps the most complete and extensive factory for the manufacture of heavy ordnance in the world." In order to complete our account of the Watervliet shops we now present a plan showing the disposition of machinery in the south wing. Several of these machines are already in place and most of them have been contracted for.

Architecturally, there is no difference between the north and south wings, except that the west side of the latter is 30 feet wider, making the extreme width of the south wing 154 feet. Each wing has a length of 400 feet, making a total length of 958 feet, the central section separating the two containing the forges, shrinkage pit, boiler and engine rooms. The eastern extension of the south wing is 22 feet wide and the western extension 50 feet. The central portion is 76 feet between the walls and 60 feet from center to center of the columns carrying the cranes. The hight from the floor line to the peak of the roof is 75 feet. Except at the central or shrinkage pit section, which has a monitor roof, the entire building is lighted from the sides and ends, and we may here state that it is one of the best lighted shops we ever entered.

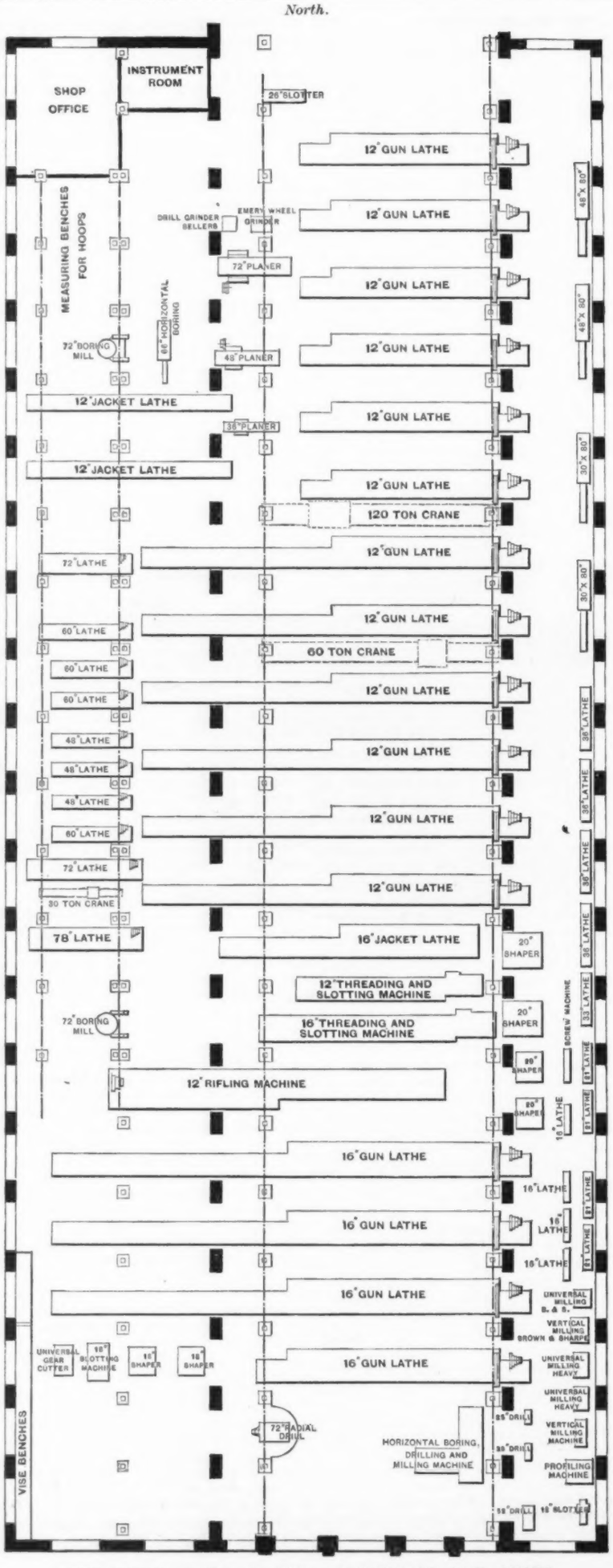
At the present time there are three boilers and one 250 horse-power Fitchburg engine furnishing power for the north wing. When the boiler and engine rooms were designed space was provided for the engines and boilers necessary to run the south wing.

The accompanying plan conveys such a comprehensive idea of the tools which will eventually occupy the new wing, and as we have in previous issues minutely described all of the principal machines, it is not now required to go into details.

The crane track in the north wing is 50 feet wide and on it travel two 30-ton square shaft cranes; the track in the other wing is 60 feet wide and upon it are two Morgan electric cranes, one of 60 tons and the other of 120 tons capacity. At the shrinkage pit the two tracks have been extended past each other, so that the cranes from either wing can be brought into service handling guns at that point.

There is trouble in New Jersey and Massachusetts workshops because of the 58-hour law which was passed recently for the benefit of the laboring classes. Employers are compelled to regulate their establishments so that 58 hours constitute a week's work, and any violation of the law is met with heavy penalties. In some instances the wage earners had the difference in time deducted from their pay, and strikes have occurred in consequence. Employers argue that the men are paid according to the hours of labor, and that less wages must follow a reduction in time.

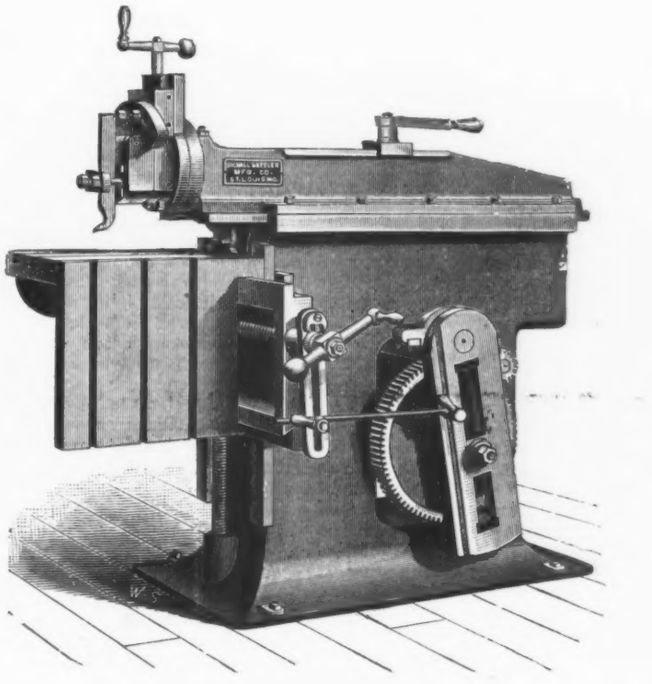
The new navy, after the completion of the vessels already ordered, will number 43 vessels, and comprise 6 double turreted harbor defense vessels, 3 armored cruisers, 5 armored battleships, 3 cruisers, 13 protected cruisers, 6 gunboats, 5 of the special class (including the torpedo and dynamite cruisers), 3 torpedo boats and 1 ram.



THE SOUTH WING OF THE WATERVLIET GUN SHOPS.

The Business Shaper.

The Business shaper has a stroke of 15 inches, side traverse of 22 inches and will plane at one chucking a surface 15 x 22 inches. The table can be raised or lowered 14 inches. It is square gibbed and ample provision is made for taking up lost motion. The ram is made unusually heavy and strong, has a shift of 18 inches, and at no part of its stroke has less than 33 inches in the ways. The stroke can be instantly changed from zero to full length. The rigidity and the accuracy of the machine are assured by the fact that the bed of the frame is cast in one piece. A shaft 3½ inches in diameter can be run clear through the machine and key seated at any desired point. The head is graduated to degress, so that any desired angle can be planed, and it is provided with a new swiveling device which can be



THE BUSINESS SHAPER.

quickly and easily manipulated. All the journal boxes are capped and babbitted so that any lost motion occasioned by wear or otherwise can be taken up. All the sliding joints are scraped to fit. All the shafts are made from crucible steel, and the rock shaft is 3 inches in diameter. As the rock is double and step-toothed there is no torsional strain on the ram and no lost motion on back lash. This shaper, which is made by the Bignall & Keeler Mfg. Company of St. Louis, Mo., weighs about 2500 pounds.

Stanley G. Flagg & Co. of Philadelphia announce that since there is an increasing demand for their Keystone soft metal unions, it has been found necessary to increase the production, which they have done to a considerable extent. These are manufactured under letters patent, which also include the Keystone Vulcabeston union, for high-pressure steam and various other purposes. As the contraction and expansion is less than the soft metal, acid and gas have no effect on this packing. The objection to the ordinary union is that a packing has to be inserted, and should the pipe be slightly out of line in making the connection, the packing would be worn thin on one side more than the other, whereas with the Keystone unions the head and tail pieces accommodate themselves to the line of the pipe and a joint is made with but little pressure and very rapidly.

French Courts and Trade-Union Intimidation.

An important decision on a labor question has been given by the Paris Court of Cassation. A law of 1884 legalizing trades unions, or syndicates, as they are called in France, abolished at the same time an article of the Penal Code which punished by imprisonment coalitions of workmen against masters or against each other in the exercise of freedom of labor. A member of one of these syndicates having resigned, his fellow workmen threatened to strike if the master continued to employ him, and also resolved to prevent him obtaining other employment. The master surrendered to the threats of the syndicate, the man, named Joost, was discharged, and was unable to obtain work elsewhere. He then brought an action against the syndicate to recover damages for the wrong done to him, but the local tribunal non-suited him, refusing to hear the evidence he offered. He appealed to the Court of Grenoble, which also gave judgment against him, on the ground that as the menaces were not accompanied by any acts of violence, the moral restraint exercised on the master was not an indictable offence since the abrogation of Article 416 of the Penal Code. The Court of Cassation has now quashed the judgment of the Court of Grenoble, laying down the principle that a distinction should be made between penal liability and civil liability, and that certain acts, such as coalition and boycotting, although not punishable under criminal law, may nevertheless open a claim for damages under the civil law by an application of Article 1382, which declares that a man who causes damage to another is bound to make reparation. Therefore, although threats of a strike addressed, without violence or fraudulent maneuvers, by a syndicate to an employer, are lawful when they have for object the defense of trade interests, they are not so when their object is to constrain a master to discharge a workman because he has withdrawn from the syndicate or refused to join it. In such a case there is an attack on the rights of the workman, which, if an effect is produced, renders the syndicate liable to damages toward him. That doctrine will, in consequence, have to be applied in the new trial that will take place.

The Cost of Steel.

A Pittsburgh newspaper quotes the following figures for the cost of open-hearth basic acid steel ingots at Homestead, claiming that they were taken from the books on December 28, 1889:

Acid Open Hearth.

Description of charge.	Weight. Pounds.	Per ton.	Value.
Lucy special pig iron....	18,000	$23.56	$189.24
Bessemer crops..	47,000	23.00	482.58
Bessemer ore, Republic..	2,000	7.85	7.01
Ferromanganese, 72 per cent.	500	62 25	13.90
	67,500		$692.73
Total charge, tons...	30.13—$22.99.		

Products.

	Pounds.	Tons.	Per cent.
Ingots	60,750	27.12	90
Scrap.....	2,700	1.20	4
Loss	4,050	1.81	6

Total cost of charge, $692.73, less value of scrap, $27, gives $665.73, actual cost of 27.12 tons of ingots, making the cost per ton of ingots.....	$24.54
Labor.....	1.65
Maintenance and repairs.....	.42
Superintendence, clerical help and office expenses....	.37
Total cost per ton.....	$26.98

Basic Open Hearth.

Description of charge.	Weight. Pounds.	Per ton.	Value.
Low-silicon pig.....	10,000	$23.16	$90.00
Cast-mill scrap...	8,000	16.80	60.00
Miscellaneous wrought scrap	12,000	22.40	120.00
Pit scrap.....	2,000	22.40	20.00
Iron ore.....	1,360	7 85	4.76
Ferromanganese	240	62.72	6.72
Total charge.....	33,600		$301.48
Per ton.....			20.10

Product.

Total cost of charge, $301.48, less value of scrap, $13.46, gives $288.37, actual cost of 13 5 tons of ingots, making the cost per ton of ingots	$21.36
Labor	1.90
Maintenance and repairs....	.70
Superintendence, clerical help and office expenses...	.45
Total cost per ton....	$24.41

We quote these figures merely because they may mislead many. How little value is to be attached to them may be gathered from the fact that the fuel item is entirely missing. Natural gas, cheap as it is, costs something.

An indication of approaching competition from a new quarter is seen in the following item of news in connection with a recent meeting of the Western Traffic Association: "An application for a 17½-cent rate on structural iron from La e Superior points to Chicago and Milwaukee was refused because it would be a lower rate per 100 pounds per mile than was in effect on the Eastern roads and might be used as an argument for reducing Western rates generally, whereas they should be relatively higher than those in effect on the Eastern roads on account of the lighter traffic and longer hauls in the West."

The Builders' Iron Foundry of Providence, R. I., is now finishing and assembling, for the United States Government, for coast defense, 43 12-inch breech-loading rifled mortars, making, with those finished under a previous contract, 73 guns of this type from the works of this company.

LIGHT TIN PLATES.

We have referred in these columns on several occasions in the recent past to the evident disposition of British tin-plate manufacturers to hold their American trade regardless of the tariff and of the local competition which is springing up. We have also referred to some of the methods that are coming into vogue for cheapening cost and reducing the price of Welsh plates so that the competition of the tin-plate makers of this country can be successfully met by foreign manufacturers. From various sources we learn that every possible economy is being practiced in the tin-plate works of Wales, and that in addition various questionable expedients for reducing cost are being resorted to. The greatest change that has been introduced, and the one in which American consumers of tin plates are most interested, is the substitution of light-weight plates for standard goods without indication of the change in the marks on the boxes. Plates that are supposed to weigh 112 pounds to the box, for example, are being sent out by the manufacturers weighing only 108, 104 and even as little as 100 pounds to the box. An extreme instance to which our attention has been called shows bright plates at 80 pounds to the box, and another 150 pounds for 20 x 28, equivalent to 75 pounds to the common box. Inasmuch as duties are assessed by weight, these light plates, of course, represent not only smaller cost at the works and smaller cost in freight, but also smaller cost in the way of duties. Hence a profit is possible even though the price per box is less than formerly, notwithstanding increased duties. A statement that reached us only a few days since from an importer who is thoroughly conversant with conditions in Wales at the present time was to the effect that all but a very small percentage of the plates that are at present being imported are of the light-weight variety.

An Awkward Dilemma.

This fact is of the greatest importance to American consumers, for it means that either the buyer of foreign-made tin plates at the present time is a party to a deception, and to the use of inferior plates for various purposes, or else that the importers are successfully swindling him by giving him light weights when he supposes he is getting standard goods. From all the information at our command, we do not hesitate to say that the position of the buyer of imported tin plates is at present more critical and more hazardous than ever before in the history of the trade, and as our columns in the past have conclusively shown, the tin-plate buyer has had some thrilling experiences. Never before was there greater need of the honest buyer of tin plates, whether ternes or brights, being on his guard against deceptions. The Welsh manufacturer has set out to make money out of the present situation, regardless of means, and certain importers are apparently quite willing to be of assistance. Nothing but the vicious plan of tin-plate nomenclature at present in vogue would make such practices possible as are now current. As we have pointed out on many occasions in the past, IC and IX, as designations of thicknesses of plates, are not definite. It is true that IC has been accepted in the past to mean 112 pounds to the box, but what are called IC plates are at present being imported of many pounds less to the box, and the victimized purchaser is supposed to be none the wiser.

Old Style Plates.

The importers of old style roofing plates who during the past few years have built up a large trade in guaranteed goods, and whose plates to date have been standard so far as thickness of iron or steel is concerned, and far above standard so far as coating is concerned, are placed in a very awkward predicament by reason of the present action of the Welsh manufacturers. It is essential above all things that they maintain the quality of their plates up to the high standard which they have possessed for years past, thereby maintaining good faith and giving their customers entire satisfaction. To do this, however, with standards of weight and quality being lowered, keeps these high class plates disproportionately expensive in price; but after all, this is the smallest part of the difficulty. The Welsh manufacturers, never noted for a high sense of honor, having committed themselves to the plan of degrading the quality of common plates for the sake of meeting the existing conditions of the American market, announce to their correspondents that they have no hesitation in applying the same treatment to the high-class plates which they have been manufacturing to order and as it was supposed on honor. The facts are that not only have they become lax in the finish of these plates and in the amount of coating applied to plates of these special brands, in the character of the steel plate employed and in the way in which it is pickled and cleaned preparatory to coating, but recently some of them have gone a step further and have actually proposed, as a matter of co-operation between themselves and the American importers who stand sponsors for these guaranteed goods, that the plates be degraded even in other particulars in order that as much money as possible be made out of the situation.

Deaf to Protests.

The protests of the American importers against the unsatisfactory plates that have been coming out for some months past go unheeded. Letters from consumers addressed to importers, saying that recent invoices are not up to standard and are not according to representations, when turned over to the manufacturers produce no effect, and on top of all this comes the cool proposition—in one particular case, at least—to maintain the name and degrade the plates to such an extent that the market will be met and some profit made. We have before us a letter dated in Wales some two months since, in which the proposition is made to reduce the weight of one of the leading guaranteed ternes from 120 pounds to the box to 108 pounds, and to reduce its quality in other particulars as well. "In this way," says the manufacturer, "we could reduce the price" so much;" and as we are gradually to lose the trade, we may as well supply the cheaper grade of plates while we can." If consumers of high-grade ternes find at the present time that their plates are not equal to what they were formerly, they have the reason for it in the facts above presented. Importers are practically powerless to save themselves, for the Welsh makers are fighting on the forlorn hope that they can hold out until some change in the general situation occurs, or at least make a little money while their trade is dying, as die it surely must.

The Remedy.

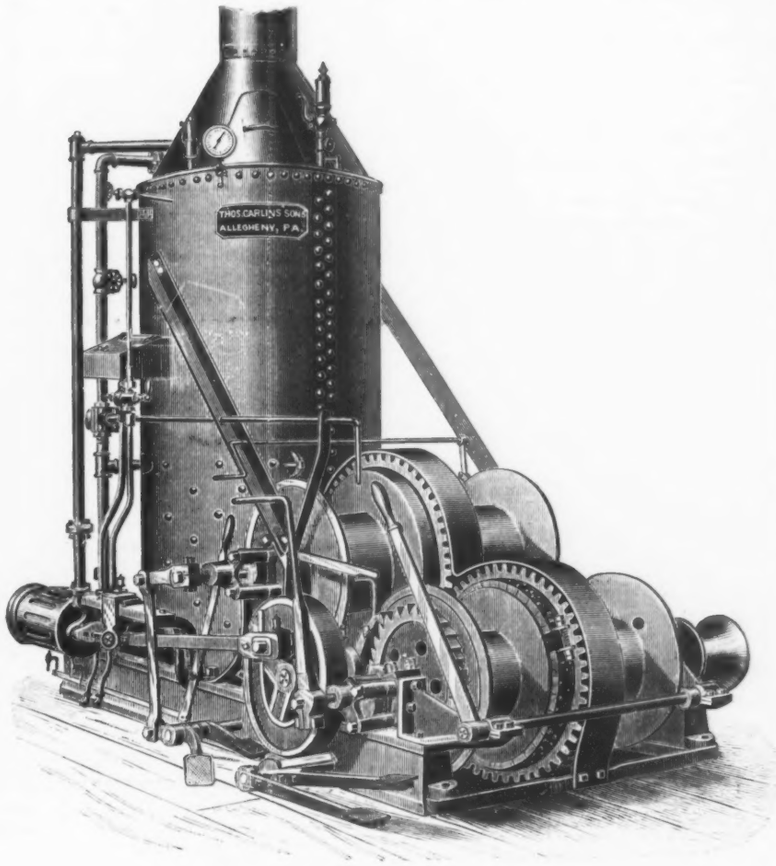
There would seem to be but one course left for American importers. Almost every prominent house in the tin-plate trade has been experimenting the last few months in the processes of manufacturing tin plates. In some instances this experimentation has been done directly and in other instances it has been done at second hand, but, however this may be, it is safe to say that there is not a tin-plate house in the land at the present time that has not within its office such data concerning tin-plate manufacture as enables it to know beyond the chance of dispute that as good tin plates can be made in this country as ever were made in Wales, if not of even higher quality, and that, too, at a cost that will enable the jobber of American plates to meet the market. The obvious duty of jobbers who have a first class trade to protect is, therefore, to manufacture their own plates or have their plates manufactured for them in this country. Consumers are too much wedded to good goods and to goods sold under a responsible and definite guarantee of quality to be willing to give up their advantages. Jobbers in turn have made too much money out of this honest and wholesome plan of doing business to be willing to abandon it without a struggle. All the scheming of Welsh manufacturers will go for naught if American jobbers will but take upon themselves the responsibility of domestic manufacture, a responsibility which, after all, is small compared with many other things which they have shouldered in the past. The few concerns that have already commenced the manufacture of tin plates, we happen to know, are well pleased with the results, and the samples which are coming to this office from week to week continue to show steady and satisfactory progress in quality and finish. It has been found possible in America to apply coatings of a weight which was declared to be impossible by Welsh manufacturers. It has been found possible also to give the plates a quality and a finish superior to anything that the Welshmen ever turned out. If American tin plate makers can do this after a few months' experience in competition with Wales with its 100 years of established industry, what will not America do a little later? Tin-plate buyers will do well to ponder upon this question and to reason with themselves upon the expediency of systematically and on principle giving the preference to domestic goods. A little substantial encouragement is all that the new manufacturers need at this juncture.—*The Metal Worker.*

A Great White Lead Works.—Some weeks ago it was known that Levi Carter of Omaha, president of the Carter White Lead Company, was in Chicago to locate the "greatest of all" white lead works in this country. It being understood that the plant would be among the largest located in Chicago for 15 years, there was considerable competition among the gentlemen managing the various manufacturing centers to secure the prize. Even certain trunk lines of railroads entered into competition for the location of the works on their roads. Last week President Carter and William R. Kerr, general manager of the West Pullman Land Association, concluded negotiations, and a contract was executed locating the entire plant on 5 acres, bounded by 120th and 121st streets and Peoria and Sangamon streets in West Pullman. Some idea of the magnitude of this plant may be obtained when it is stated that it comprises 15 buildings, with from one to four stories each, and will cost upward of $300,000. The capacity of the works, it is stated, will be three times greater than any other white lead works in America. The tonnage of the company in and out of West Pullman will reach 50,000 to 60,000 tons per annum, and this fact explains the anxiety of several trunk lines to secure the works. The 15 buildings are all to be substantial brick structures, and when completed the plant will resemble a small town in itself.

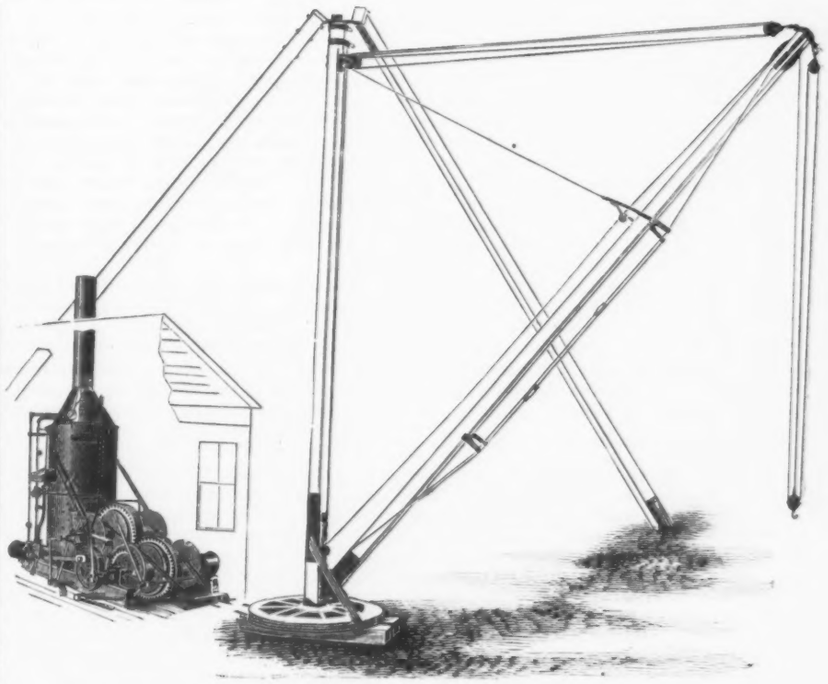
The New York Car Wheel Works of Buffalo, whose general agent is J. R. Ellicott of New York, call attention to the machined car wheels for electrical and horse car service. Each one is bored to a center, turned true on the tread and balanced.

The Carlin Four-Drum Hoisting Engine

A new form of four-drum hoisting engine has been designed and placed on the market by Thomas Carlin's Sons of Allegheny, Pa. It was especially intended for operating a derrick to handle coal, sand, &c., the accompanying drawing showing its application in handling coal and unloading it from barges on to wagons and to an overhead tramway for supplying a series of gas producers. The engines are strongly geared and all shafts are of large diameter and provided with ample bearings. The four drums are operated by a patent friction applied at the ends of drum shafts. This engine, in addition to having four drums, has a cathead or wrench on one of the drum shafts, which is used for moving and swinging the barges. The two front drums are 16 inches in diameter and are used for raising the load, and also for raising and lowering the boom, thus changing the radius at which the load may be hoisted and delivered. The two back drums are of similar diameter, and are used for swinging the derrick, which will cover three quarters of a circle. The engines are powerful enough to raise the load, raise the boom and swing the derrick at the same time.



THE CARLIN FOUR-DRUM HOISTING ENGINE.



HOISTING ENGINE ARRANGED FOR OPERATING A DERRICK.

The latest estimates of the destruction by floods on Western rivers do not differ essentially from those made in the spring. A correspondent who has conversed freely with some of the river captains writes from St. Louis that the damage by flood on the Mississippi River above St. Louis will reach at least $2,000,000. Below St. Louis, including southern Illinois, Missouri, Arkansas, Tennessee, Mississippi and Louisiana, the losses by the floods will range from $10,000,000 to $15,000,000, nearer the latter figure it is thought than the former, making an aggregate of from $15,000,000 to $20,000,000 in all. While few lives have been lost, there has been great destruction of farm stock and household furniture and clothing, a large number of dwellings with their outbuildings having been swept away. The river remains very high at St. Louis, New Orleans and intermediate points. Many places that were flooded in May were again submerged by heavy rains.

WORLD'S FAIR NOTES.

The most interesting occurrence in connection with the World's Fair the past week was the passage by the United States Senate of the $5,000,000 appropriation. The bill will have to run the gauntlet of the House now, but the friends of the exposition of course feel very sanguine of their success in that body and regard the battle as more than half won. If this generous appropriation is awarded by Congress it will be a magnificent achievement by the management of the World's Columbian Exposition. The people of Chicago have distinguished themselves for audacity from the beginning of the agitation for a World's Fair. First they carried off the prize when the contest came up over the selection of a city to be officially recognized by the United States Government as the location of the Columbian Exposition. Other cities claimed the right of being considered, but Chicago from the beginning acted with the cool assurance born of thorough confidence in the overthrow of all other rivals. Next Chicago started out with plans for buildings and surroundings to surpass anything ever before done by an international exposition. The stockholders of the Exposition Company subscribed for $5,000,000 of stock, and the city of Chicago gave $5,000,000 more. The enormous sum of $10,000,000 thus secured, which far surpasses what was done after years of weary effort in Philadelphia for the Centennial, was raised with what now seems to have been consummate ease. The ambitious plans, however, for this colossus of expositions call for a greater expenditure of money than had at first been contemplated, and Chicago turns with admirable self-possession to the national Government for assistance in carrying out the project in its amplitude. No small amount is asked for; such a trifle as was granted Philadelphia, a mere matter of $1,500,000, would not do; but a good round $5,000,000 is named. Great is Chicago, and great is Chicago's luck. She has the World's Fair and will have all the money necessary to run it, too.

There is a fly in the ointment, however, and that is the condition that the fair

shall be closed on Sunday, which is coupled with the appropriation as it passed the Senate. A strong sentiment in favor of Sunday opening exists in the West, and the advocates of a Sunday fair are as persistent and as pugnacious as the advocates of Sunday closing. It would be hard to say which side is in the majority in the absence of a direct poll on the subject. The discussion of this question has proceeded at fever heat the past week, and both sides have given vent to strong expressions. The advocates of Sunday opening go so far as to counsel the exposition managers to refuse to accept the proposed appropriation on the condition that the fair shall be closed on that day, and they allege that the amount needed can be made up by popular subscription. On the other hand, the Sunday closers insist that if the fair is not closed on that day a strong effort will be made to unite religious people all over the country to boycott it. The controversy is an interesting one. It is all the more interesting to those who are familiar with the manner in which Sunday was observed at the Centennial Exposition in Philadelphia. In deference to religious sentiment, that exposition was closed to the public on Sunday. At first no visitors were permitted within the inclosure on that day. Friends of the officials then began to plead for passes, and were so fortunate as to get them. Before the summer was over large numbers were admitted every Sunday. The peculiar feature of the Sunday visitation was that no one paid an admission fee. Sunday was therefore the best day for those who had friends among the managers. They paid nothing for the privilege of entering the grounds, and they were not rudely jostled by great throngs, as they would have been through the week. If this is the way Sunday closing will be enforced at Chicago the gates should be thrown open for paid admissions on that day as on any other day.

Spain's Historical Exhibit.

A. G. del Campillo, Commissioner for Spain to the Columbian Exposition, arrived in Chicago on Thursday. Mr Campillo is secretary of the Spanish Legation at Washington, and is specially commissioned by his Government to represent it in the arrangement for its exhibit at the World's Fair. The Spanish Commissioner called upon the exposition authorities, and accompanied by Chief Fearn of the Department of Foreign Affairs visited the several departments and at once took up the matter of the disposition of space and other details relating to the Spanish exhibit. The collection to be sent by Spain will be of an extremely interesting and historical character, aside from those sections of its exhibit of an agricultural and industrial character. All the notable collections which will constitute the most interesting and historically valuable features of the Columbian exhibit at Madrid are to be forwarded to Chicago.

Pavilions Must be Built.

Chief Fearn of the Foreign Affairs Department will shortly issue and forward to the representatives of all foreign governments who have accepted invitations to exhibit at the World's Columbian Exposition the following letter: "I am instructed by the Director-General, upon the suggestion of the Chief of Construction and the Committee on Grounds and Buildings, to address the representatives of foreign governments which have accepted the invitation to participate in the World's Columbian Exposition, notifying them that, in case they propose to erect official pavilions, it is necessary that plans and specifications for the same should be prepared and forwarded to me at the earliest practical moment, and to inform them that unless this is done without delay it will not be possible to reserve space in the grounds for such buildings."

Arranging for a Safe Approach.

The Illinois Central has a double force of men working night and day on its track elevation near the World's Fair grounds. Sand is being deposited on the big embankment at the rate of about 500 cubic yards a day. Five freight trains are kept constantly in service carrying sand from the south. The contract for the masonry at the street crossings has been let and the contractors have commenced work on the foundations. The concrete work is also fairly under way.

The iron girder work for the crossings has been let to the American Bridge Company of Chicago, who are getting their materials ready to begin work on the subways as soon as the masonry is ready. The railroad company are building the embankment with their own men, and they will also lay the tracks.

The elevation will be 160 feet wide at the bottom and 130 feet at the top. There will be sufficient space for ten parallel tracks, but it is probable that not more than seven or eight will be laid this year. The tracks will be 9 feet above present grade at the 12 street crossings for which subways will be constructed.

Next week the company will have a line of electric lights completed on both sides of the elevation, so that masonry, brick work and all departments can be pushed day and night with a heavy working force. About 600 men are at work now and several hundred more will be added within a few weeks.

Sibley College Exhibit.

The exhibit will consist of photographs and drawings, to be shown in connection with the general university exhibit, as showing educational methods and apparatus in place and the distinctive methods employed in teaching. The principal exhibition will be the products of the Sibley workshops.

The construction of useful products to any great extent is a new feature in the Sibley shops, but the experience of the past year has demonstrated that such a system, judiciously managed, can be successfully adopted in shops for the education of engineers. The system now in successful operation consists of the construction of a few shop pieces, to acquaint the students with the use of tools, followed immediately by a course in actual construction. The products which can be creditably exhibited have, with few exceptions, been constructed within the past year, or are still in process of construction.

The following list of articles includes those which will be placed on exhibition as showing the handiwork and skill developed in the machine shops:

1. A list of shop pieces, designed to secure practice in the use of especial tools, involving hand tools, lathes, planer and milling machines.
2. A Brotherhood engine.
3. A small duplex Gaskill pump.
4. A Worthington duplex pump.
5. Two small upright engines.
6. The Sibley Columbian Engine. This engine is of the marine type, vertical, triple expansion, with steam piping arranged so that it can be run as three simple engines, with full steam pressure in either cylinder, or as a compound or triple-expansion engine. The diameters of the cylinders are 7, 11 and 17 inches, the stroke in each is 16 inches, and each cylinder is constructed so that it can be used with or without a steam jacket.

A condenser and air pump will be especially constructed for this engine, and connected directly to the base of the engine. This engine will be one of the largest yet undertaken by any college shops, and its successful completion will be creditable to the Sibley shops, and it will no doubt attract much attention at the exposition.

In addition to the above exhibit, it may be considered desirable to send several articles constructed at the shops when in charge of Professor Sweet, among which would be the original Straight Line engine, and several lathes of Professor Sweet's design.

From the blacksmith shop, foundry and wood shops exhibits will be made showing the character of the instruction, as well as the handiwork of the students.

The following very valuable determinations have been effected—principally with the new optical pyrometer—by that careful experimentalist and savant M. H. le Chatelier. The temperature factors are in degrees Centigrade:

Bessemer Process—Small Converter (Roberts' type).

	Degrees.
Period of blow	1,330
End of blow	1,580

Six-Ton Converter.

A. Bath of slag	1,580
B. Metal in ladle	1,640
C. Metal in ingot mold	1,580
D. Ingot in reheating furnace	1,200
E. Ingot under the hammer	1,080

Open-Hearth Furnace (Siemens).

Semi-Mild Steel.

A. Fuel gas near gas generator	720
B. Fuel gas entering into bottom of recuperator chamber	400
C. Fuel gas issuing from recuperator chamber	1,200
Air issuing from recuperator chamber	1,000

Chimney Gases.

Furnace in perfect condition	300

Open-Hearth Furnace.

End of the melting of pig charge	1,420
Completion of conversion	1,500

Molten Steel.

In the ladle—Commencement of casting	1,580
End of casting	1,490
In the molds	1,520

For very mild (soft) steel the temperatures are higher by 50° C.

The bath of steel in the central part of furnace is of higher temperature than toward the ports.

Siemen's Crucible or Pot Furnace.

1,600 degrees.

Rotary Puddling Furnace.

	Degrees.
Furnace	1,340-1230
Puddled ball.—End of operation	1,330

Blast Furnace (Gray-Bessemer Pig).

Opening in face of tuyere	1,930
Molten metal.—Commencement of fusion	1,400
End, or prior to tapping	1,570

Hoffman Red Brick Kiln.

Burning temperatures	1,100

The Poughkeepsie Bridge Company, under a certificate filed at Albany, are reorganized under the name of the Poughkeepsie Bridge and Railroad Company, with a capital of $5,000. The directors are: John W. Brock, Richard Y. Cook, Harry F. West, Charles E. Morgan, Jr.; Arthur E. Newbold and George A. Fletcher of Philadelphia; Milton A. Fowler of Poughkeepsie; Lewis P. Dosh, Alfred A. Gardner, Ernst T. Shumann, William J. Cromwell and William R. Carlisle of New York, and Robert L. Lee of Plainfield, N. J.

Two bridges on the Northern Pacific Railroad, near Mullan, have been blown up by strikers at the Cœur d'Alene mines, and 500 men, including the president of the Miners' Union, have been arrested by the Federal troops, for attacks on non-union men and violent conduct.

Combined Portable Riveting Machine and Punch.

The accompanying drawings show the principal features of a combined portable riveting machine and punch, made by the Farquhar Heating Company of 58 Dearborn street, Chicago. It is made of steel throughout. It punches holes up to $\frac{5}{8}$ inch in iron $\frac{1}{4}$ inch thick and under, and it sets $\frac{5}{8}$-inch rivets with ease, making the new head perfect as though the original head of the rivet. It brings a pressure of 25 tons upon the seam, and it is operated by hand, the operator taking care of the one leg and of the handle. He holds the handle in a vertical position while the setter sets the machine with the dies over the rivet. Then the operator by a quick movement throws the handle down to a horizontal position. He utilizes the force of gravity acting upon the weighted handle, but does not throw his own weight upon it. After giving it a good impulse at the start, he allows the momentum of the falling weighted handle to do the work which he could not possibly perform with simply his own weight. The necessary "sleight" is acquired quickly. The work makes the machine especially useful for all tank work and small boilers. If the work is light it will punch through both thicknesses at once. If the work is heavy it uses the first hole as a guide and punches the second hole through the first. This makes the holes always "fair," which is one essential to good work. It also saves the time and trouble of laying off or centering the holes, of fitting the plates together twice, and of reaming the holes. The machine exerts its greatest pressure at the last, just as the head is finished, and gives it a perfect form and finish to the very edge. It is a convenient tool to take

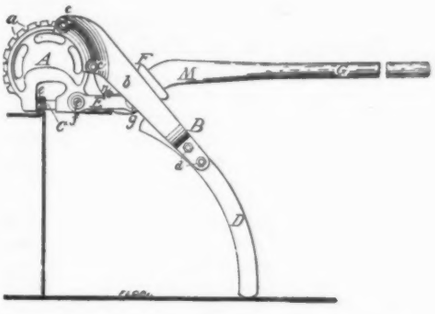


Fig. 1.—Side View in Position for Vertical Seam.

Fig. 2.—Plan View.

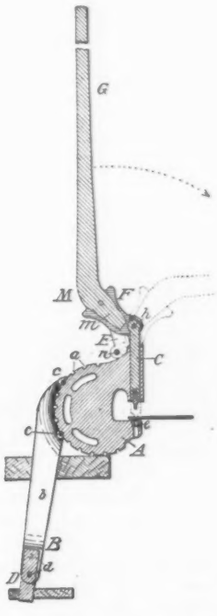


Fig. 4.—Set Upon a Bench and Used Like an Ordinary Punch.

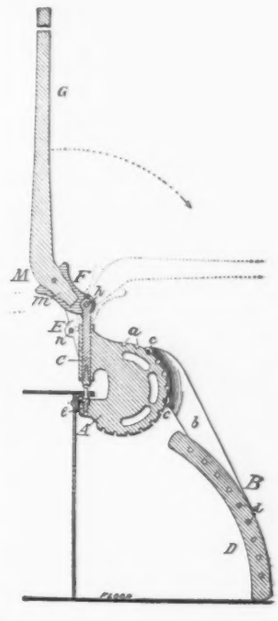


Fig. 7.—At Work on Horizontal Seam with Handle Thrown Back

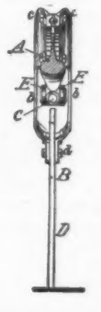


Fig. 3.—Vertical Cross Section through Body.

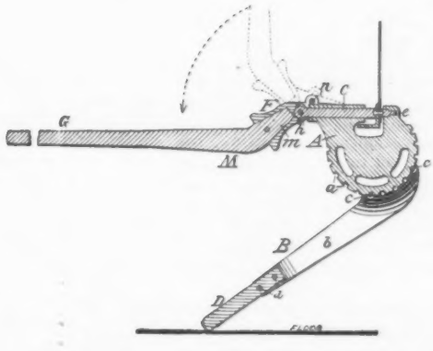


Fig. 5.—At Work on the Bottom of the Sheet, Showing Angle Iron Within the Throat.

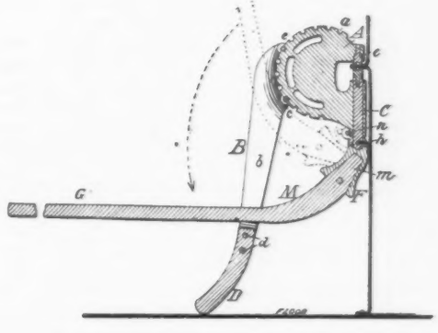


Fig. 6.—At Work on the Side of a Tank, Making a Horizontal Seam.

COMBINED PORTABLE RIVETING MACHINE AND PUNCH.

leaves the seam water and steam tight by contact of the flat surfaces of the metal and without the use of a calking tool.

The machine weighs 150 pounds, exclusive of the handle. It consists of a jaw or body, A, leg B, handle or lever G, and the toggle joint formed by the links E and wrist F, acting upon the plunger C. The wrist is reversible and the handle reversible in its socket. The leg is reversible on the body, and the body being clamped between the plates *b b*, which form a part of the leg, is adjustable. This makes it possible to set and operate the machine in almost any desired position, as will be seen by reference to the various diagrams. It is portable, and the machine is carried to the work, instead of carrying the work to the machine.

It is usually finished with one stroke, but two lighter strokes may be used if preferred, before the next rivet can possibly be delivered. The leg resting upon the floor, or in a sling if the work is in the way of a floor footing, resists the stroke of the handle and keeps the machine steady. The setter may be relieved of the weight by suspending the machine from overhead.

It is stated that with this machine two men can drive as many rivets in one day as they could drive in ten days by hand. It drives rivets up to $\frac{5}{8}$ inch just as fast as the rivets can be delivered, 15 to 30 rivets per minute. It squeezes the plates together with such force that no work is needed to make the seam tight after the riveting is done. This is a great saving of labor and out on fire-proof buildings, to be used upon the light wrought-iron work. The makers affirm that the four machines in use at their own works save their entire cost once every week on an average.

The Olin Institute of Mining Engineers, of which A. Howells is president and Robert M. Haseltine of Columbus, Ohio, secretary, will hold a summer meeting in the Connellsville region on August 1, 2, 3 and 4.

The organization of the American Corn Harvester Trust, to embrace all the leading manufacturers of corn harvesters in the country, was completed in Springfield, Ohio, last week.

Inconsistencies of Organized Labor.

The ostensible and avowed object of labor organizations is, primarily, the protection of the rights of working men and women against the alleged oppression by their employers, upon the hypothesis that labor and capital were essentially antagonistic, and that as capital was so much more powerful than individual labor, the only way in which the latter could hope to successfully maintain its "rights" was in organization. That is, by combining the many individuals into a unit, of whom the capitalist must buy the labor required in his business, or go without, it must necessarily reverse the previous order of things, and place the preponderance of power in the hands of the workman. This Utopian idea had the weakness of being illogical and impracticable, though the influence of the movement has been so far reaching as to have been felt in every portion of the civilized world, and the end is not yet.

Divested of all sentimentalism the subject may be resolved into an abstract question of political economy, the pros and cons of which should be considered dispassionately, if logical conclusions are to be reached. It is needless to say that any attempt to interfere with normal conditions, in any connection, must result in disturbance and confusion. And even if the effort is successful, and a radical change effected, the natural tendency toward a return to the normal would necessitate constant tension in order to maintain the changed conditions. Sooner or later the temporary character of the change is manifested by a readjustment upon the original basis. Given sufficient velocity of current we may cause water to flow (?) up hill for a certain distance. But the least reduction of the velocity will correspondingly shorten this distance, and if removed entirely an immediate return to its natural level will result. What is the analogy? Considered in its true light, the labor question is not between capital and labor, but the relation between supply and demand. Labor is a marketable commodity—quite as much so as wheat, which is simply the result of the farmer's labor; the workman is the seller and the manufacturer or capitalist the buyer. Under normal conditions, if the demand for labor is great in proportion to the number of available workmen, wages must go up correspondingly. If, on the contrary, the number of men seeking employment is in excess of the demand for their services, the natural consequence will be a reduction in the price of their labor. In the first case the competition is between the employers, in the latter the workmen. The manufacturer must have the services of the workman or he will be unable to carry on his business. The workman must have employment in order to earn the living for himself and family. The principal difference between the two is that, while the loss or stoppage of his wages is almost a matter of life or death to the latter, to the former it is not nearly so desperate, but merely an interference with his commercial prosperity. So far, then, the advantage is clearly with the employer. It may be said that the employer has it in his power to fix arbitrarily the rate of wages he will pay, regardless of any other consideration than his own will and pleasure. Let us see. If trade is brisk and the demand for labor great in proportion to the available number of workmen, the manufacturer must offer some special inducement to the former to work for him, otherwise he will be unable to obtain the number necessary for his business, or at least he can secure the services of only so many as cannot find employment with the other manufacturers who are paying a higher rate of wages. In other words, while the effort is always to buy as cheaply as possible, the law of supply and demand is the only power in existence which can fix the values of commodities, whether they be merchandise or labor. The employer is quite as much subject to this law as the employee—he must pay the market price of labor, as the workman on his part must accept it, whether it be high or low; and neither has any more cause for dissatisfaction than has the farmer selling his labor products, or any other laborer who sells the product of his labor instead of the labor itself. And yet there is no idea of antagonism between the farmer and the miller, for instance, who buys his wheat. He realizes that the miller does not have it in his power to make the price of wheat any more than does the employer that of labor. Wheat must be cheap if the supply is great in proportion to the demand—under normal conditions, of course—and the producer, even if he indulges in some grumbling at the state of affairs, does not feel aggrieved that it exists.

One of the fundamental principles of the so-called rights of labor is the absolute right of every man to sell his services to the best advantage to himself. This is but logical and right. It makes the skillful and industrious workman capable of earning in proportion to his degree of superiority over his fellow-workmen, just as the able business man is successful above such as have a lesser degree of business ability. There is neither good policy nor justice in establishing a uniform rate of wages per hour or per diem, by which all workmen—good, bad or indifferent—fare alike. Considered entirely with reference to the workmen, it takes away all motive or inducement for the skillful and conscientious workman to do his best, and places a premium on the methods of the drones, whose sole object from the time of commencing their day's work is the signal for quitting.

The value of the results, and not the hours, would, under normal conditions, be the basis upon which the rate of wages was established, as is the custom in some of the trades having organizations, iron and steel works, for example. But in the majority of cases the rate is on the time basis, and is fixed by the organizations and not by the employees. This being unquestionably an abnormal condition, requires the use of, let us say, unusual means to enforce and maintain it. Is it not reasonably certain that a removal of the restriction would result in an immediate return to payment for value instead of for time? It does not follow that this would involve a reduction of the value rating, or that the deserving workmen would realize less remuneration for their day's work. That would be decided by the condition of the labor market, as regards the relation between supply and demand. But, from any standpoint, it would certainly be justice to both workman and employer, as being the natural outcome of cause and effect.

The question of wages, however, is but of secondary importance as compared with others which constitute the real issue. As an abstract proposition, it would be deemed absurd to question the right of a workman to solicit or accept employment from whomsoever he saw fit, and on such terms and wages as were mutually satisfactory to the parties directly interested. Neither could it be doubted that he has an unrestricted right to use his own judgment as to whether or not his individual interest and desire would be best served by his becoming a member of the organization representing his particular trade. Certainly this, if anything, is what constitutes the rights of every citizen of a free country, whether he be a workingman or not. He has the right to be a free agent in all matters of a lawful nature, and any attempt to coerce him into waiving such rights is, in itself, both unlawful and unjust. There can be no doubt that the intent and motive of organization was to secure to the workingmen the advantages of systematic methods for the protection of their interests by lawful means only. Neither is there any question as to the policy of the legislative and executive departments of the organizations being strictly in conformity with the original intention.

But unfortunately for the interests of labor, as well as of the community at large, the transgression of these limits has become so common as to make it the rule. First, by insisting, upon pain of ostracism, that every workman shall become a member of the organization of the trade to which he belongs, which, as a rule, is the only one in which he is able to earn a livelihood for himself and family. Practically, this amounts to compulsion, as the result of his failure to join the union means the loss of his livelihood; second, the deplorable tendency of the rank and file, in the event of disagreement with the employer, to resort to force in case the issue should result in a strike. No effort is spared to prevent non-union workmen from filling their places on the employer's terms, and where persuasion fails, force, amounting to violence and personal injury of the "scabs," is resorted to. That this is almost invariably in direct opposition to the counsel of the authorized leaders of the aggrieved union does not make it any the less deplorable in its results. If on a large scale, like the unfortunate Homestead affair, there is almost sure to be more or less loss of human life, and an almost incalculable financial loss to both sides of the controversy. Even if public sentiment is in sympathy with the workingmen, the fact remains that they are violating the laws made for the government of the community—alike for their protection as well as of the capitalist—and that they are therefore placing themselves in a false position, and leaving the officers of the law no choice but to proceed against them, even if it be necessary to invoke the aid of the military. It is a hopeless task for them to undertake to set the entire commonwealth at defiance and cope with the large military force at its disposal, and besides there is always a dispiriting moral influence present where men are engaged in the commission of an unlawful act, even though they may feel that justice is on their side. Clearly this condition of affairs is an abnormal one, and will continue to exist just so long as the artificial influences continue, which have caused and maintained it so far. Relax them in the least and the tendency to return to the natural level will manifest itself.

But the magnitude of the labor question seems to place its solution beyond the pale of mere theorizing. Systematic effort on the part of employer and workman, jointly, would surely accomplish it were each willing to try and view the matter from the standpoint of the other as well as his own; and there must be an honest desire, on the part of a large majority on both sides, to have their relations placed upon a more amicable footing. Let the workingman consider what would be his position in the controversy were the employers to exercise their full power to his hurt—to retaliate in kind in case of a strike where the support of the entire organization was given to those directly involved. Should all employers engaged in the line of business affected decide to summarily discharge all of their union employees and sacrifice their business interests for the time being, they could do so and still suffer no personal hardships. But to their employees it would mean simply starvation unless they could obtain financial help on a large scale from other trade organizations, in which case other establishments

would be closed, and the end would only be reached when the lockout would include all organized labor. Where, then, could they find the means of subsistence? The men might be willing to suffer the most extreme hardships rather than give in, but they could not endure the sight of starving wives and children. No ordinarily intelligent workingman can fail to see the possibility of such concerted action on the part of employers, nor that each recurring disturbance renders the danger more imminent. The experience of the past goes to clearly confirm this view, and each succeeding conflict can but emphasize it.

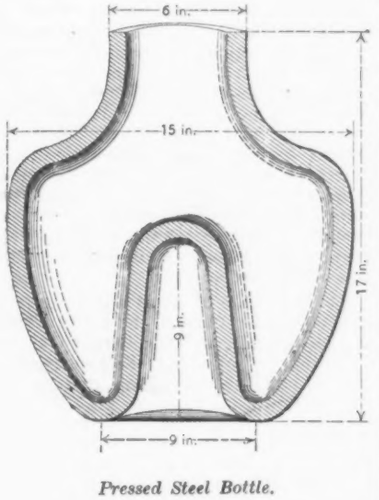
There are among the wage workers many men of more than ordinary intellectual caliber and moral force whose influence among their fellows would enable them to become leaders should they so desire. If such men could be induced to exert themselves in behalf of the real welfare of their respective organizations and the cause of labor in general, there can be but little doubt as to the result. If half the energy were shown by the moderators as is expended by the agitators, in season and out of season, the solution of the problem—possibly the greatest of the social problems of the age—would be accomplished.

The time is not so far behind us when labor troubles were unheard of in this country, and if such were possible a quarter of a century ago, surely the progress in this progressive age should be of improvement, and not the reverse. Let employer and employed alike go in for the study of the principles of political economy and each apply them fairly and dispassionately to his own side of the issue. It will pay.

B. F. T.

Pressed Steel Bottle.

A remarkable piece of work done by the Avery Stamping Company of Cleveland, Ohio, is represented in the accompanying engraving. It is a bowl or bottle designed



Pressed Steel Bottle.

for use in centrifugal cream separator machines. It is stamped out of a steel plate ¼ inch thick and measures 17 inches in hight, 15 inches extreme diameter, 6 inches outside diameter of neck, and weighs 230 pounds. When in operation this bowl revolves at the rate of 8000 to 10,000 revolutions per minute. The quality of the steel and the workmanship necessary to produce an article that will stand this enormous strain without spreading out must be of the highest grade. This is but one of several different designs and shapes of these bowls made by the company; it gives an idea of the class of work done by them and the facilities they have for doing intricate and heavy work, of which they make a specialty. We are informed that the company are at work on a new bowl, which is even more intricate and difficult to stamp than the one shown in the cut.

When Does it Pay to Destroy a Locomotive?

In a recent issue of *Locomotive Engineering* we find an interesting article on the above subject by A. Dolbur. Since his method of reasoning can be applied to any machine liable to become useless because of wear, we make the following abstract:

We must bear in mind that the condition of a locomotive rather than its age should be the pivot upon which rests the proposition of whether it is policy to consign it to the scrap pile, or by repairs continue it in service.

We must bear in mind that the capacity of rolling stock has increased two-fold within the past 15 or 20 years. We remember when a locomotive of 60,000 pounds weight, with cylinders 16 x 24, was considered large. To-day few freight engines are built of less than 100,000 pounds weight and with cylinders less than 19 x 24, while many are in use of 120,000 pounds weight and 20 x 24 cylinders.

We speak of this simply to illustrate that the advancement and changes of railroads and their equipment will to a great extent enter into the question of economy of maintaining engines that were built 15 or 20 years ago. The Pennsylvania Railroad 15 years ago began the process of destruction of its old power, yet, last year, we saw upon this road an engine that was over 20 years old. We recognized it at once as an old-time acquaintance. This engine, while not so heavy as one of the modern type, was equipped with 20 x 24 cylinders. This road, which, we believe, was the pioneer in the destruction of old power, was using engines older than many newer ones which had years before been destroyed.

You cannot consider this question from a motive-power standpoint exclusively, but let us see how it stands as far as that department is concerned.

Let us take an engine that has been in active service hauling freight for 12 years past. This engine comes to shop and you look it over, and find the engine will have to receive new fire box and one flue sheet, new cab, cylinders, tender cistern and tires. At the same time you will apply air pump and driving brakes, and very likely apply some new driving axles. This engine will cost with these repairs $3000. While these repairs are going on you watch things carefully. The boiler is swung out of frames, and after flues are out and inside of boiler is cleaned, you find things you do not like. Your boiler maker calls your attention to the fact that one sheet in the boiler looks bad, thin in some places, and in another, narrow, longitudinal grooves worn in sheet. However, you feel that the boiler is safe after it stands the hydraulic pressure. Your fire box is put in, and you look with some pride upon the work that has been done, but that boiler maker of yours will probably spoil your good feeling, which is enough to commend him for doing a good job, by remarking: "Yes, it's a good job, but that throat sheet—" Then he will wag his head. "Well, what's the matter with that—isn't that all right?" "Yes, it is all right, for a while," is his answer: "but it is only going to be a short time before that will have to be renewed." You leave the boiler and go over into the blacksmith shop, where one of the frames is being straightened, and you find them interviewing a crack that had developed by getting the frame hot. You have this remedied by welding, and instruct them to bring in the other frame and examine that. And so you go Whichever way you turn the engine is showing weakness that was never dreamed of while in service, and you wonder whether your $3000 estimate is going to hold out. Time goes on and the engine goes into service. We will say that it is satisfactory, and you are getting good service, and it runs without mishap for a year, or perhaps eighteen months, when the engine comes to shop for repairs. About the time this engine was turned out of shop a new engine was bought and put on the road. This engine comes into shop for repairs at the same time. You look over the expenses during the past year and you will find the engine which you had repaired so thoroughly has cost a great deal more than the new one for running repairs. You give both engines the repairs they need, and find the cost of the new one $250, while upon the other engine you are lucky if it does not reach $1000 or $1200.

Now let me ask, my mechanical friends, if we have stretched that little fable any? It don't happen to be a fable; it is a fact based upon actual experience. The next year when your engines come to the shop you will find that the one engine will cost about $600, the other will cost you at least $1200.

We have been asked to prepare a table with estimated cost of repairs for eight years to an engine that is 12 years old and to one that is new. Below is the estimate. We invite criticism of it, fairly, fully and freely:

	Eng. No. 1 (Old).	Interest.	Eng. No 2 (New)	Interest.
Value as scrap	$800			
Cost of repairs	3,000			
Total	$3,800		$9,000	
First year	1,000	$190	250	$450.00
Second year	1,200	240	600	462 50
Third year	1,500	300	1,000	492.50
Fourth year	3,000	375	1,800	542.50
Fifth year	2,000	525	1,500	632.50
Sixth year	2,000	625	1,600	707.50
Seventh year	2,500	725	1,800	787.50
Eighth year	2,500	850	2,000	877.50
Total	$19,500	$3,830	$19,550	$4,952.50

You find by this estimate that you have now one locomotive on your hands at the end of eight years that has, including its price, cost you $19,550. The older engine has cost you $18,700 for repairs alone. Had you sold the older engine eight years before you would have realized at least $800 for it, so that practically you have one engine eight years old and one 20 years old that, as far as your department is concerned, have cost you about the same. We have not lost sight of the fact that at the outset the company have invested $9000, and that the interest of this amount during the eight years would amount to considerable, say, $4,952.50, as against $3830, the interest on cost of repairs to the old engine. Neither have we lost sight of the fact that your new engine has been hauling upon an average four more cars per train than the older engine. We are not prepared to say what the value of this additional service would amount to, but it would certainly be far in excess of amount of interest on the money invested.

It would be folly to say that an engine should run a certain number of years and then be destroyed, for some engines at 15 years of age are worth more than others at eight. The condition and worth of the individual engines must decide that, but we do believe that many roads are maintaining engines that it would be economy to destroy. At the same time, we wonder whether some engines are not destroyed that it would be economy to repair.

The Pennsylvania Railroad Company have given an order for 2000 tons of steel rails to weigh 100 pounds to the yard. This heavy rail will be used on the main line of the company.

Firing the Justin Projectile.

(With Supplement.)

The success of the recent experiments with the Justin projectile at Perryville was so complete, and the results were so very satisfactory, that there is every reason to believe that the Ordnance Department of the army will institute a series of trials at Sandy Hook under its own supervision. What has been thus far accomplished is to fire a mass of explosive gelatine from guns firing gunpowder charges without there being a bursting of the guns or any other accident. The experts declared only a couple of years ago that it was extremely problematical if this could be done, and they based their opinions upon the various accidents that had accompanied all previous attempts. The solution of the problem was thought to lie in the application of pneumatic power, and in the so-called Zalinski dynamite guns we find that success has been reached by that means. The shells thrown from them are, however, nothing more than aerial torpedoes, and the distance that they can travel is not great enough for the purpose in view. To be sure, within their range they are terribly effective, and have power enough to crush in a vessel's deck should they land upon it, or blow her out of the water if they fall alongside. They cannot, however, pierce armor of any thickness, nor is their flight great enough.

To overcome these difficulties and to demonstrate the fact that it is possible to fill shells with dynamite, gun cotton, gelatine or other high explosive, and have them pierce steel plates and their backing before explosion, Dr. Justin invented a method that has scored a signal triumph and placed him in the front rank of the ordnance experts of the day. This victory has not been won without numerous failures, and those who were present upon two former occasions, when 9-inch guns were burst without there being anything of a positively satisfactory nature accomplished, were very skeptical as to their being anything in it. Were they at the last trial, it is safe to predict that they would have come away fully convinced that both the Doctor and his shell were very much "in it." The trouble with former experiments was largely due to the fact of the "carrier," as it is called, being made of metal. This carrier is a shell within a shell, and contains the explosive gelatine. Its walls had to be very thin in order that it should contain a sufficient quantity of the explosive compound. This thinness was fatal, as it permitted a bending or buckling, as it is termed, which was enough to wedge the carrier in the shell and make the shock of discharge sufficient to cause a premature explosion. The twist imparted to the projectile by the rifling of the bore of the gun was thought to be far more dangerous to the carrier than the shock caused by the firing of the powder. To remedy this fault of a too early explosion, the inventor adopted wood as a material for the carrier instead of steel, and the change seems to have been a decided success.

The operation of loading the carrier and preparing the shell for firing is very interesting and occupies but a short time. To the innocent spectator it looks as though the soft glue looking material were harmless enough, and that the Doctor and his assistants handled it as though they had not an idea that it might possibly go off and blow them and their surroundings into the minutest atoms. Explosive gelatine was chosen because of its power. It is far more potent than gun cotton, which has been selected as the high explosive for service torpedoes, and is at the same time less sensitive. Camphor has been added to reduce the sensitiveness, while at the same time it does not detract from the explosive force.

The jube jube paste-looking explosive is packed into the carrier by hand, the operators being obliged to wear rubber gloves to prevent a serious headache which is sure to last for at least 24 hours following a handling of the gelatine without gloves. The charge for the 9-inch shells is 34 pounds, and after this has been carefully stowed away there is just room enough to put in the primer and close the base of the shell. The carrier is composed of three principal parts—the base, dome and body. The base is turned from a block of hard maple, made by gluing and joining 2-inch pieces crossways of the grain. The center of the upper side is chambered to receive the lower end of the detonator, the latter being rigidly held in position by a steel pin which traverses the base and detonator at right angles to the primer. The body and dome are made of white wood. The collar, which joins the dome to the body, is turned from a block of hard maple, and is glued and doweled to the body and to the dome.

Over the wooden dome is secured a spun copper cap, bearing upon its apex a steel shaft terminating in a ball-like enlargement. Beneath the ball the shaft is transfixed by a steel pin. Upon the shoulder formed by the collar and the base are secured flanged disks of leather. One side of the body is grooved to receive the firing pin, the lower end of the groove being adopted to receive the upright portion of the primer.

Encircling the body of the explosive carrier are six steel bands, the spaces between them increasing gradually from below upward. At the point where they cross the groove they form so many guides for the firing pin. The base is drilled through to the detonator to receive the horizontal portion of the primer.

The primer consists of a tube of brass joined at a right angle by a vertical tube, and forming one piece. A horizontal tube screws into the open end of the first-mentioned tube. Passing through the vertical portion of the primer is the friction pin, which is cylindrical at its upper extremity, twisted and serrated in the middle part, and contracted into a rod in the lower part.

The explosive carriers are made from thoroughly seasoned stock. After being turned to the proper size, they are dipped in melted paraffine and the outer surface finished with a coat of japan. This treatment prevents shrinkage and they remain unaffected by variations of humidity and temperature.

When fired from a rifled gun the shell operates as follows: A steel swage plate at the base is driven in by the expanding powder gases, forcing a copper flange into the grooves of the rifling, causing the walls of the projectile to rotate around the explosive carrier. The latter slides on the leather disks, which have been thoroughly greased before the carrier was placed in the shell. Rotary motion is by this means gradually imparted to the carrier, and sudden shocks avoided.

When the target is struck the carrier plunges forward, shears off a steel safety pin and brings the firing rod in contact with the shoulder. This drives the rod against the friction pin, which fires the primer and explodes the detonator; the latter detonating the explosive gelatine charge.

To create a delayed action a small socket is turned in the walls of the detonator on a line with the primer tube, the bottom communicating with the chamber of the primer. In the pocket is compressed a fuse composition, the depth of which determines the amount of delay. This delayed action can be regulated from a small fraction of a second to 30 seconds, or more if desired.

The composition powder consists of sulphide of antimony, chloride of potash and sulphur mixed into a paste with a solution of shellac in alcohol. A quantity of the paste is packed into the bore of the primer and the friction pin pressed into it until the lower end of the latter engages in the perforation in the bottom of the primer tube.

The carriers for the 9-inch guns are taken to the firing stand by themselves and are placed in the shells, which are of steel and have walls of about ½ inch in thickness. The powder charge for the larger gun weighs 30 pounds and is made up of the ordinary grains of brown prismatic powder. The charge for the smaller gun weighs 6 pounds and is made by breaking up the large grains. No attempt was made in the trials to determine the ballistic properties of this powder, so pressures and velocities are not known.

The guns used were a Parrott muzzle-loading 60-pounder rifle and an English Blakely muzzle-loading 9-inch rifle. The latter gun is one of triplets that were brought up from Charleston for another series of experiments. They were originally sent over during the Civil War from England for the forts at Charleston, and contributed their quota toward pounding the monitors and other iron clads. Two of the steel guns were burst at former trials of the Justin system, but the third stood the work like a Trojan.

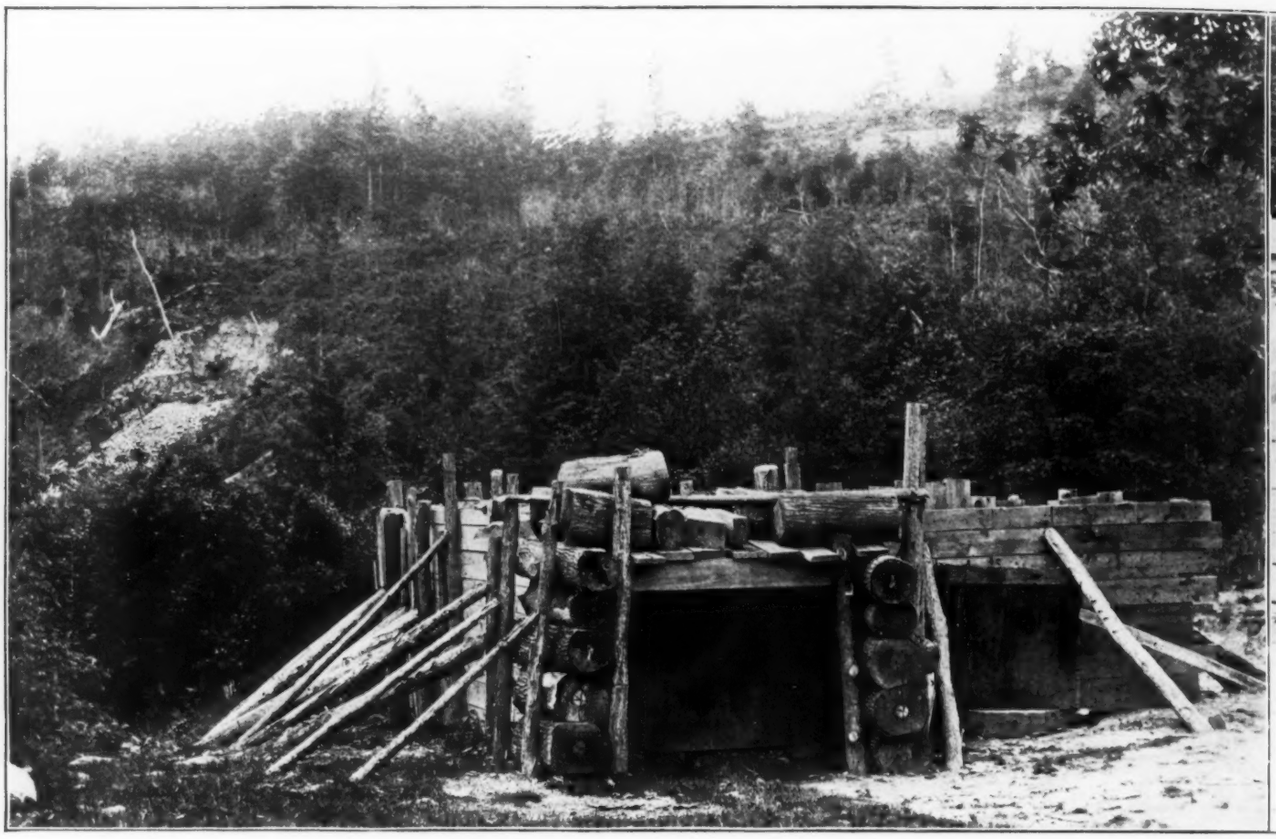
These guns were mounted on improvised carriages, and were protected from each other, as well as from their immediate surroundings, by screens made of timber packed with clay. The guns were fired by electric primers, which were connected by wires to a battery behind a bomb-proof several hundred feet to the left and rear of the guns. This bomb-proof was very strongly made, and was of sufficient size to contain all those who were present to witness the trials.

Just above the bomb-proof were mounted the photographic apparatus, the tubes for working the shutters being led into the bomb-proof. This portion of the work was in charge of Arthur P. Yates of Syracuse, whose clever manipulation resulted in the remarkable instantaneous views from which our illuminations were taken. When we consider that it was necessary to manipulate the camera on a scale of time equivalent to the one-thousandth part of a second, some idea may be gathered of the difficulties to be overcome and the skill and judgment exercised to procure such excellent results. Mr. Yates had previously won an enviable fame by catching a view of the Empire State Express while speeding at a rate of 65 miles an hour.

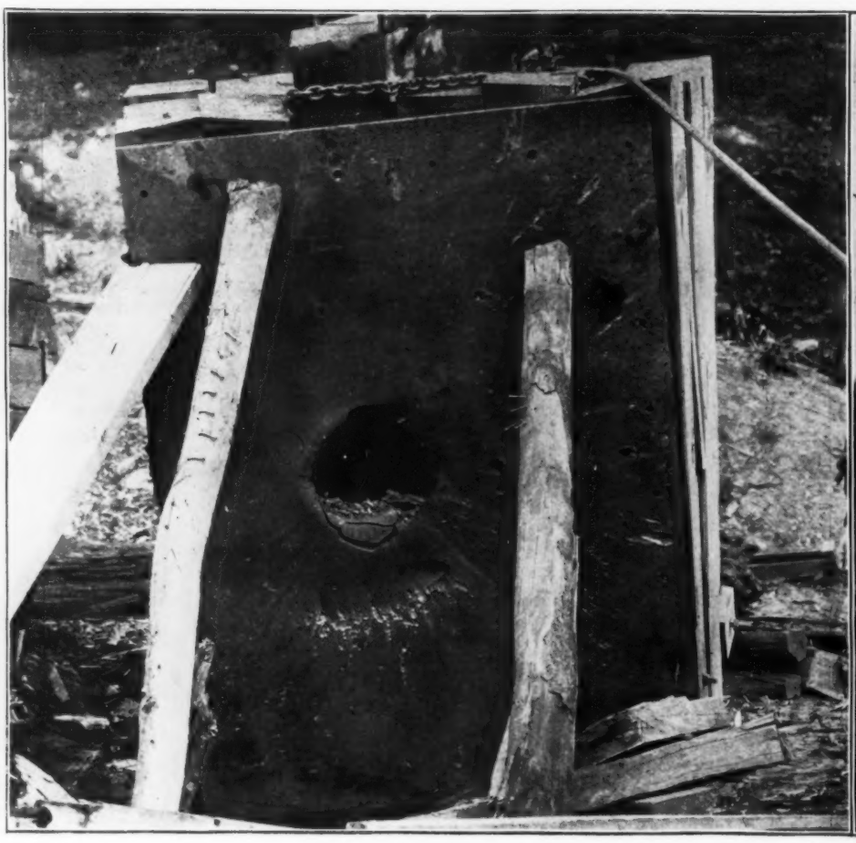
The first series of shots was fired from the 60-pounder Parrott, the shells weighing 56¼ pounds, and the bursting charge 6¼ pounds. The first four shots were fired at a rocky cliff 700 feet distant, and the explosion tore away immense masses of the rock and earth, sending pieces flying to a distance of ¼ mile. The fifth shot was directed at a butt about 100 feet distant.

This butt was built of heavy timbers, firmly packed with rammed clay. The face of the butt was formed of 13-inch timbers, protected by a steel plate ⅝ inch thick. The idea of this shot was to penetrate the plate, timber and 16 feet of clay without explosion. This was most successfully done, the shell remaining in the butt, and its course through the clay being shown by a ridge on top, as though some mammoth mole had been crawling through.

The sixth shot was fired with a delayed action fuze, and was intended to penetrate well into the butt before exploding. As a matter of fact it passed through plate and backing and burst after entering the clay to the depth of 1 foot, driving timber and plating toward the guns and



FIRING BUTT.

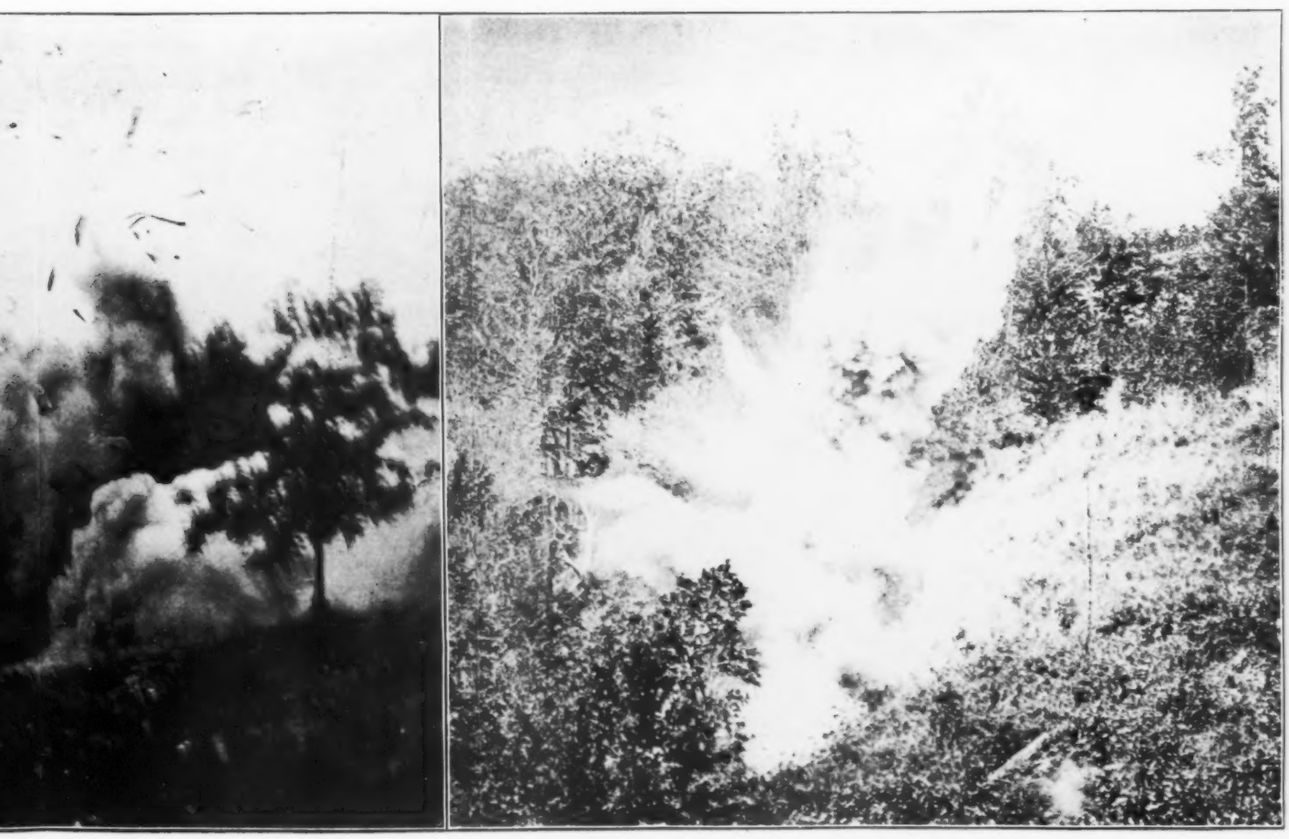


TARGET AFTER EXPLOSION, BLAKELEY SHELL.

BLAKELEY SHELL

PARROTT RIFLE.

BLAKELEY RIFLE.



HELL EXPLOSION.

PARROTT SHELL EXPLOSION.

sending a mass of clay and splinters away up into the air.

The second series was fired from the Blakely 9 inch rifle, the shell weighing 225 pounds, and the charge 34 pounds. Three shots were fired at the cliff, where they buried in the rock and exploded, tearing themselves into thousands of pieces, and loosening immense quantities of stone.

The next two shells that were fired weighed 214 pounds each, the charge of gelatine being increased to 36½ pounds. They seemed to make still greater havoc with the face of the cliff, which came tumbling down by the ton, while pieces whistled through the air in every direction, some being picked up half a mile from the firing ground.

The last shot was fired at a butt protected by 3 feet of hard wood and 3 inches of steel plating. This shell was also fitted with a "delayed-action" fuse, and was designed to explode after penetrating into the middle of the butt. The point of the shell got through the plating and exploded in the wooden backing with a terrific report, hurling the plate to the front and grinding the timber to chips and powder. The body of the shell left its mark on the face of the plate, showing that it did not all get through.

The hole in the plate, as shown in the cut, was large enough for a good-sized boy to crawl through, while several people could find room inside the wood backing. The clay butt was also disintegrated in the front portion, while the air was filled with splinters, dust and stones. The trouble with both of the delayed action fuzes can, it is confidently believed, be readily overcome, and their acting too quickly was really the only feature that was not pronounced to be perfectly successful throughout the trials.

THE WEEK.

A wealthy merchant of Tokio, Japan, who is in this country on business, expresses himself hopefully concerning the new commercial treaty being negotiated between America and Japan. If a commercial basis is established upon reciprocal principles, this country, he believes, will take a large share of the trade now controlled by Europe.

About one-third of the great five-mile tunnel in process of construction under Mt. Kelso, in Colorado, has been completed, and over 30 mineral veins have already been intersected. It is thought that this great enterprise, which promises to shorten the distance between Denver and Salt Lake about 225 miles and open up a large section of country to railway service, will be completed in about three years.

The Chicago *Trade Bulletin* calculates that the aggregate supply of all wheat in the United States on July 1 was about 72,000,000 bushels, or 32,000,000 bushels in excess of that of one year ago.

American exports of cotton goods to South America have increased over 22 per cent. during the last 11 months, principally to Brazil. British exports meanwhile have decreased. It is noticed that the improvement is not confined to those countries with which we have reciprocity treaties.

The Western Traffic Association, with its Advisory Committee, is commonly supposed to be on its last legs, as it appears to have only a nominal existence and a nominal authority. Consequently little restraint is felt by railway corporations who are inclined to disregard rules for the regulation of the rates of freight. The C., B. & Q. Company, seen from the outside, appears to be the refractory member.

The estimates of this year's crops based on the last Government report are as follows:

	Estimate this year.	Yield last year.
Wheat, bushels	525,000,000	611,000,000
Corn, bushels	1,690,000,000	2,060,000,000
Oats, bushels	624,000,000	738,394,000

The cotton crop is estimated at about 7,000,000 bales.

The fruit crop this year of all kinds is phenomenally light, and the price of canned peaches, cherries, tomatoes and strawberries is rapidly advancing. A Western order for tomatoes comprised 45,000 cans.

The Fall River cotton manufacturers made an unsolicited advance of wages to their employees.

Venezuela is represented by fugitive citizens to be in a deplorable condition on account of the continuance of civil strife. Trade of all sorts is dead and hunger is prevalent.

The compulsory pilotage bill is dead.

A large independent sugar refining company is about starting in Brooklyn, with $1,000,000 capital.

The presence on the Yang-tsze of an unusual number of foreign gunboats operates to prevent a renewal of hostile demonstrations against foreign residents.

A decisive vote against the silver bill in Congress last week is confidently believed to have ended the agitation for free coinage, at least for this session. Several members who were supposed to favor the measure unexpectedly turned against it.

Nearly 13,000 immigrants arrived in Montreal during the last two months.

The tonnage tax collected in the United States last year was only $520,333, of which English vessels paid $307,366 and United States vessels paid $74,370.

The Government ram building at Bath, Maine, will be launched next month, also cruiser No. 11, building at South Boston.

At last accounts 20,000 men were wanted in Kansas to harvest the wheat.

Englishmen boast of a measured mile of ironclads and cruisers lying along the quays at Chatham dockyards.

Indian merchants in Calcutta wish the British Government to introduce a gold standard in that country to relieve their monetary troubles.

The record of immigration into the United States during the last 11 months shows an increase of 60,000 over the corresponding period last year, when the total was 560,000. The total for 1892 promises to exceed that of any former year, except at the beginning of the present decade. Russia furnishes the largest contingent. Big crops are supposed to be the principal attraction.

The New Jersey State authorities are seeking information respecting the use of terraces in Holland, preparatory to adopting devices to stop the inroads of the sea on various parts of the coast. The coast line in some places is constantly changing.

The Rogers Locomotive Company at Paterson gave their men the option of working full time on Saturday or not at all, and the works will be run for the present only five days in the week under the new fifty-five hour law. As the men are paid piece work they are not expected to remain long satisfied.

The removal of restrictions upon the use of American pork, taken together with reciprocity treaties recently negotiated, has had the effect greatly to enlarge the export trade in provisions during the month of June. All kinds of beef and hog products share in the outward movement, as appears from the following comparison for two years:

	June, 1892.	June, 1891.
Breadstuffs	$16,448,977	$13,199,536
Provisions	12,028,547	8,139,275
Cotton	7,790,988	8,647,385
Petroleum	3,472,761	4,039,516
Cattle and hogs	3,050,927	2,576,369

The aggregate increase in valuation is $6,390,122, despite the heavy decline which has taken place in the price of grain, the total for last month having been $42,792,000 for the items enumerated.

A census report shows that the colored population of the United States numbers 7,470,040, exclusive of 107,475 Chinese, besides Japanese and civilized Indians.

An important route for coal transportation is promised by a proposed line of railroad up the Delaware Valley from Stroudsburg, Pa., to Port Jervis and thence to Kingston, on the Hudson River.

A Chicago special announces that Judge Gresham has awarded $43,000 to the National Linseed Oil Company for infringement of patent against one of their competitors. This decision will affect a large number of outside concerns also.

Judge Pettit of the United States District Court of Idaho, in a decision given a few days ago, declared that "whatever enthusiasts may hope for, in this country every owner of property may work it as he will." Few men in their cooler moments would seriously attempt to dispute this proposition.

The tax levy in Hudson County, New Jersey, includes $100,000 for an iron bridge across the Hackensack River.

Several locomotives are being shipped from Pittsburgh to the United States of Colombia.

Binding twine is scarce and at a premium in the grain regions.

An English inventor claims that steamship propellers which have the end of the blades curved so as to lessen the resistance caused by vertical motion are an improvement.

The Canadian Niagara Power Company to develop the power of the Horseshoe Falls in Victoria Park were formally organized at Niagara on Saturday, and A. D. Shaw was elected president; vice-president, F. L. Stetson.

The discussions which have taken place relative to the methods for checking gold exports, and the supposed danger of gold going to a premium, are now treated as summer debates, not justified by the circumstances, and it is now declared that it will be the business of Congress at the next session to act on Senator Sherman's recommendation of the repeal of the existing silver law.

Stevens Institute of Technology is growing rapidly, the last graduating class numbering 39 men, and 120 students having applied for admission to the college in the fall. It is prospering, too, in other respects, the alumni having raised $17,000 for a new chemical laboratory, and President Morton having given $20,000 for the further endowment of the chair of engineering. Besides building up the institute by his labors, President Morton has given at least $50,000 toward fitting up the workshops and the endowment of chairs.

The combination which has existed for the past seven years among the manufacturers and jobbers of watches, by means of which the price of timepieces in this country has been kept in the control of the makers, is just now receiving the attention of District Attorney Nicoll. The probable result of the investigation, it is said, will be the indictment of several well-known New Yorkers for conspiracy.

The Iron Age

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DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

Subscribers of *The Iron Age* will be furnished, on application at its offices at New York, Philadelphia, Pittsburgh, Boston, Cincinnati, Cleveland, Chicago and St. Louis with copies of the Index to Volume XLIX, January–July, 1892.

The Homestead Troubles and the Amalgamated Association.

The testimony taken by the Congressional Committee last week should put at rest many of the false reports which have been afloat concerning the Homestead troubles. Both sides agree that the firing was begun by the strikers. Representatives of the latter claim that the weapons were discharged in the air, an assertion which will carry little weight in face of the testimony that watchmen were wounded before a single shot was fired by the Pinkerton guards. O'Donnell, the leader of the men, testified in response to the following question: "From your seeing, hearing expressions, will you state what was the cause of the great antipathy of those people there to the Pinkertons?" "Well, of course you know the laboring classes have a natural antipathy—a general one—against them. It may have been in this case owing to the fact that in the town were lying dead five men shot to death by them. As to not letting them land, they look on them as men armed for resistance against them and dangerous allies of capital. Also, they apprehended that if the Pinkertons got possession, that the company would employ non-union men in the works. That was what influenced them."

The admission is significant. The guards were attacked because they were "armed for resistance" against efforts to keep non-union men out of the mill. The men understood perfectly well that the Pinkerton guards would not be aggressors. They understood perfectly well what their mission was, and knew that they had been summoned for the protection of property and of the lives of such men as were willing to work at the company's terms. What their reception of unprotected non-union men would have been can be easily imagined.

It is pretty clear that it requires unusual courage, after the happenings at Homestead, for any man who is eager to work in the mill now to enter a community which will for a long time nurse its vengeance against any non-union man.

So far as the merits of the controversy go, the table of wages paid by the Carnegie Steel Company, which we publish elsewhere, quite effectually disposes of the claims that the reductions left the men in a pitiable condition. It is an excellent proof, too, of the high wages which this class of labor has been earning, and will still receive. It is a somewhat interesting fact that O'Donnell, the leader, testified that his wages could not be reduced unless the $22 minimum slide operated, and then they would be affected 4 per cent. He stated, in reply to the question what wages he was receiving under the old scale: "I think about $144 per month," working eight hours per day.

The men have attempted to break the force of Mr. Frick's figures of wages by quoting the averages over a long period. Thus they have presented tables of the earnings of men in the 119-inch plate mill, based on the average of 23 months, with a product per turn of 1300 tons. Mr. Frick's data were based on the May output, giving each man a tonnage of 1756 tons. Now, it is the very claim that the product has been largely increased upon which the demand for a reduction in wages is made.

The "sympathetic" strike at the Upper and Lower Union Works and at the Beaver Falls Mills is a particularly foolish proceeding, coming as it did upon the heels of the closing of an annual contract between the firm and the men. As a breach of contract to which the Amalgamated Association is a party, it places the latter in a very unenviable light. It points to the inference that that organization has not alone lost a good deal of its power over the Western trade, but is actually losing its grip upon its own members, since a number of lodges have acted in direct violation of principles which were once its proudest boast.

Months ago we urged that only an attitude of conciliation, an acceptance of present conditions as created by the depression, could save the Amalgamated Association from crushing defeat. We urged that view because its rejection would involve heavy losses both to the manufacturers and the men. They chose to assume a position of defiance. Now they will suffer the loss not alone of Homestead, but of other mills as well, and cannot hope for a decade to come to obtain a footing east of the Allegheny Mountains.

The decline in the prices of nearly all the leading commodities during the last year furnishes the topic for many newspaper editorials, both in the United States and in England. In regard to three principal items—cotton, wool and petroleum—the cause of lower valuations is clearly ascribed to abundant production. Wheat in England is 18 per cent. in value lower than at this time last year, and taking 22 of the most important articles together the fall of prices in that country during the last six months has equaled 2.4 per cent. Of cotton, although our exports for each of the last two years have been greater than ever before, the value last year was $33,531,000 less. Next as to petroleum, the Bureau of Statistics shows that exports during the year ended June 30 were larger than ever before, amounting to 710,301,000 gallons; but the reported value is less by $7,000,000, and smaller than for any year since 1880. Despite all drawbacks, with over $300,000,000 received by this country for breadstuffs and $250,000,000 for cotton during the last year, it does not appear that our foreign commerce is suffering. Compared with the trade of the United Kingdom, America has reason for satisfaction. If valuations in both countries are low and depression a common complaint, we on this side, unlike those on the other, may boast of the augmenting volume of our foreign trade and a balance standing to our credit exceeding $200,000,000. With further wheat exports, estimated at $220,000,000 for the coming year, prospects from a commercial point of view are by no means gloomy.

Western Crop Reports.

Very cheering reports are now coming from the wheat-growing sections of the country. They are remarkably bright when the doleful predictions of the spring are recalled. From Kansas, which in the recent past was a State full of calamity-stricken and debt-ridden farmers, we have the following glowing picture:

The latest bulletin issued by Secretary Mohler of the Kansas State Board of Agriculture estimates the total wheat crop of that State to be 62,592,172 bushels. This statement is based upon the reports of correspondents from various sections of the State, and will probably prove a close approximation to the actual production. The average yield to the acre is shown to be 15.79 bushels, which is not above the standard of a fair season. The percentage of gain in the acreage sown is general throughout the State, and the crop is more uniform than is usual in Kansas. The harvest in the western portion of the State compares favorably with that in the central and eastern sections, which is a highly desirable condition. This grand total will be large enough to keep Kansas at the head of the list of wheat-producing States, and to yield to that State a volume of revenue which will materially reduce its mortgage indebtedness. Never before in the history of Kansas have the farmers been compelled to besiege the railway stations and search the passing trains for harvest hands, and it is not often that the railroad companies find it necessary to reduce the fare on their lines to carry farm laborers into Kansas—a concession which they have deemed it expedient to make this season.

The latest Government crop report made the condition of wheat in Kansas 91; South Dakota, 95; North Dakota, 90; Minnesota, 92; Iowa, 88; Nebraska, 82; Wisconsin, 80; Illinois, 90; Missouri, 84; Indiana, 85; Michigan, 88. With regard to the last-named State, the report of the Board of Agriculture for the first week in July shows that the number of acres of wheat this year was 1,620,274. The estimated yield is 24,912,997 bushels. This is an average of 15.48 bushels in the southern counties, 14.85 in the central, and 15 in the northern. The area in wheat this year is nearly 180,000 acres greater than was harvested in 1891. The prospects are for a crop above the average of former years.

With such glowing reports of the wheat crop, the prosperity of the West seems destined to continue. There was great fear in April and May, and even in June,

that the crop would fall far short of the average, in which case we would have had a lean year to eat up the accumulations of last year. This is good news for those who have not lost faith in a revival of general business, and who have steadily insisted that two or more good crops in succession are necessary.

Private Railroad Corporations.

An interesting investigation has been set on foot in Chicago by the Interstate Commerce Commission. A peculiar condition of affairs has developed in the railroad business of great corporations. As many of our readers may not be conversant with the circumstances, a short account will be given which embraces the facts as far as they have become public. It appears that the Illinois Steel Company originally owned very extensive systems of railroad tracks in and about their plants at South Chicago, Bridgeport, North Chicago, Joliet and Milwaukee. Some time ago these various railroad systems were incorporated and the ownership vested in persons whose names have not been disclosed. The railroad companies so incorporated were known as the Calumet & Blue Island, the Chicago and Southeastern, the Joliet & Blue Island, the Chicago & Kenosha and the Milwaukee, Bay View & Chicago railway companies. Another corporation known as the Inter-State Transit Company was formed to control various transportation matters in connection with these companies. An experienced railroad man was elected president of all of them. It is alleged that the Illinois Steel Company and these several railroad companies are one and the same thing. The business handled by these different companies is claimed to be the business of the Illinois Steel Company. On the other hand, the officers of the Illinois Steel Company testify that the railroad corporations are separate and distinct from their company.

The investigation was held for the purpose of ascertaining whether the Illinois Steel Company had violated the Interstate Commerce act in securing, through the instrumentality of the private railroad corporations, concessions or favors from the public railroad companies hauling coke, iron ore and other material to the various works. The Pennsylvania, the Baltimore & Ohio and the Lake Shore railroad companies, it is stated, paid these private railroad corporations $3 per car for switching purposes. This money is paid, according to the testimony, for hauling cars from the connections with the trunk lines to the different works of the Illinois Steel Company. Those who find fault with this arrangement claim that the switching charge thus allowed by the trunk lines is really a rebate to the steel company on the regular rates made to the general public. Other claims have been made that the trunk lines pro rate their through charges with these private railroad corporations, and in that way give the steel company an advantage over competitors in the same line of business in lower freight charges than would otherwise be paid.

In the examination of witnesses last week the vice-president of the Pennsylvania company explained how his road came to allow these private railroads $3 on each car, and said the same thing would be done for any one else under the same circumstances. This brought out the fact that other manufacturers have been advised to do the same thing in order to secure a better rate than would be allowed under the strict interpretation of the Interstate Commerce act. It would seem, therefore, that the organization of these corporations is not peculiar to the railroads in the yards of the Illinois Steel Company, nor has the charge been made that the idea originated with them. Our readers may perhaps recall the fact that during the past two or three years several private railroad corporations have been organized, which seem to be very closely connected with manufacturing establishments.

Among iron and steel manufacturers not affected by this investigation some very decided opinions are expressed on the subject. The impression generally obtains that the Interstate Commerce act is powerless to control matters of this kind so as to completely prevent the advantages accruing to manufacturers who have found a way open to them for securing better railroad rates. They say, further, that the law is so defective that it would be very much better for them, as well as for all interested in the operations of railroads in perfect fairness to all manufacturers, that the Interstate Commerce act be completely wiped out. So long as it exists it will be evaded in some way, and it would be far better to go back to the old system of rebates rather than to subject small manufacturers to the fear of punishment for attempting to evade the law. They are usually so situated that they cannot afford to run the risk, while large corporations, with their abundant means and the array of the most skillful legal talent which they can employ, are able to find loopholes in the administration of the law through which they thus far have been able to pass safely.

The past week has witnessed considerable activity among those who carry stocks of iron and steel in Chicago. They have had a demand which extends far beyond what would be considered their legitimate territory. This demand, coming so quickly after the stoppage of Western mills, emphasizes the fact to which allusion has frequently been made, that consumers are in the great majority of cases carrying but meager supplies of material. The great agricultural works can, of course, afford to run no risks, hence they always make season contracts, but numerous other establishments take chances when prices are declining or appear weak, and run only from hand to mouth. Should the shut down continue for two or three weeks more there would be a heavy pressure for finished iron and steel, as the small mills and the non-union works now running could by no means stop the gap. This shows the good effect that a general restriction of production would exert in every direction if it could be carried out in good faith for but one month.

Reciprocity With Canada Impracticable.

A perusal of the various public documents which from time to time appear in the newspapers, touching existing relations between Canada and the United States, create the impression that affairs are badly mixed. Not long ago, pending the elections which ended in the defeat of the Liberals or anti-administration party by a small majority, reciprocity discussions had a prominent place. The two parties in Canada still seem to be as bitterly opposed as ever on this leading issue. Meanwhile all conferences held between the authorities at Ottawa and the cabinet at Washington, with reference to trade relations, have come to naught. Worse than that, so far from making mutual approaches in an effort to reconcile differences, new points of antagonism are constantly rising. A little while ago there was trouble about bonded cars at the boundary line. Then there was a question about the circumstances under which locomotives should be subject to customs duty. Later the question of imposing tolls on Canadian vessels on the Sault Ste. Marie Canal led to acrimonious expressions on either side, and at the present time there is a misunderstanding respecting alleged discrimination against American grain vessels on the St. Lawrence route. Canadians now say that they accede to every demand in this matter, whereas Secretary Foster in reply intimates that the alleged concessions signify nothing.

While these controversies continue, varied occasionally by an interchange of diplomatic notes or some official edict, the Government at Ottawa finds itself exposed to a fire in the rear. The Liberals, who lose no opportunity that may be turned to partisan advantage, upbraid the ministry with failing in negotiations for a reciprocity treaty, because the Canadian representatives declined to agree to a free interchange of other than natural products. The Montreal *Gazette*, in defense of the Government policy, reviews the history of these negotiations, stating that the Canadian commissioners were informed that it was of essential importance that a list of manufactured goods should be included in the schedule of articles for free or favored exchange in any reciprocity arrangement which might be made; also, in the words of Mr. Blaine, that "it was the desire of the Government of the United States to make a reciprocity convention which would be exclusive in its application to the United States and Canada." The Canadian commissioners, after considering the proposition in this form, announced their inability to enter into any commercial arrangement with the United States from the benefit of which Great Britain should be excluded, as Canada was an integral part of the British Em-

pire. This conclusion, Mr. Blaine reported, "was accepted as a bar to further negotiations on this subject." Upon this presentation of the case, the *Gazette* says, in vindication of the Ottawa Government:

> The true cause of the failure of the negotiations, therefore, is the refusal of the American Government to entertain the question of reciprocal trade with Canada on any other basis than a common or preferential tariff to be regulated at Washington. . . . Coming to terms with the United States means opening our markets to the manufactured and other products of that country; means abandoning one-third of our customs revenue; means setting up a discriminating tariff against Britain; means handing over to Washington the regulation of our fiscal policy, and means in the near future the absorption of the Dominion by the United States.

In short, it is demanded by our Northern neighbors that the truly loyal in Canada must insist that any convention, "exclusive in its application," is incompatible with the maintenance of British connection with the Dominion. Thus the positions taken on either side are irreconcilable. And on this basis the contention will be fought to the finish on local party lines in the Dominion, the Government and its adherents endeavoring to prove that reciprocity of the kind admissible at Washington would be equivalent to annexation with the neighboring country. With such prospects the future has an uncertain aspect.

Manufacturers' Rights.

A startling eruption of socialism has been caused by the Homestead trouble. It has poured forth from Congress, in the daily papers and from the pulpit, and colors the discussions of individuals. The special features of this particular incident are not taken in their entirety, with the view of forming a deliberate opinion based wholly on the facts of the case, but a few points are seized for the purpose of generalizing. As wages are to be reduced, popular sympathy goes out to the workingmen. As the owners of the works are wealthy they are held up to general execration. It is the poor against the rich. It is the fight of the defenseless toiler against the grinding monopolists who wish to add to their millions, and who take advantage of an opportunity to force wages down to a starvation basis. There have been many strikes in years past, and frequently more workingmen have been affected. There have been cases in which wages have been pushed to a much lower point than is proposed by the Carnegie Steel Company. There have been times when much greater distress has prevailed among striking workingmen than has yet been seen at Homestead. Strikes and lockouts are not new, and great strikes and great lockouts are not new. Yet a furore has been created by this particular occurrence which is unparalleled. Manufacturers everywhere feel that they are regarded to a great extent as oppressors of their employees, because this is the light in which the Carnegie Steel Company have been placed.

The destruction of so many lives in the conflict between the Pinkertons and the strikers undoubtedly caused a very considerable part of the deep feeling evoked. But that alone does not explain the peculiar views of the relations of manufacturers to their employees which have found such widespread expression within the past two weeks. Much of the discussion which we have read or heard has had no bearing on the employment of the Pinkertons. Special malevolence appears to be directed at manufacturers, and especially at manufacturers who have been so fortunate or so successful in their undertakings as to accumulate wealth. The impression seems to be general that if a manufacturer is wealthy he must have become so by grinding his workingmen, and that they are entitled to be considered joint owners with him in his business undertakings. If profits are small now, they were large once, and a manufacturer should continue to pay high wages because he was able to do it in the past. Those who argue so strongly and so positively against manufacturers seem to deny them almost any rights. Personal application of the arguments advanced would very probably lead to a change of views.

The hostility now manifested in so many quarters against manufacturers, and the disposition to regard workingmen as oppressed, may have results of a very different character from those anticipated by these unjust judges. If the present depression in business does not soon give way to a better condition of trade, a readjustment of wages may be necessary in quite a number of lines. Arbitration is not always agreeable to both sides interested. Sometimes employers and often employees object to submitting their affairs to arbitration. Disagreements will result in strikes or lockouts. With the experience of the Carnegie Steel Company before their eyes, manufacturers will not undertake the same risks. They will simply shut down and wait for better times or for a more compliant frame of mind among their employees. We have been so informed by more than one manufacturer. A workingman may have a permanent right to employment, but a manufacturer has also the right to determine whether he shall or shall not operate his works.

PERSONAL.

Austin Farrell, formerly of Bristol, is now at Negaunee, Mich.

D. J. Danell has been appointed mechanical engineer of the Illinois Steel Company at South Chicago.

J. C. Smock, State Geologist of New Jersey, has gone abroad.

Wm. E. Ward, an iron manufacturer in Cincinnati, was fatally injured during a gale on the 15th inst.

A contract has been signed between the Gun Flint Lake Iron Mining Company, who own extensive deposits of Bessemer iron ore in Township 65, Range 4, Northern Minnesota, and the Port Arthur, Duluth and Western Railway Company for transportation of 1,000,000 tons of ore, 100,000 tons per annum for ten years, commencing October 1. Ten thousand tons are to be shipped this fall. The ore will find an outlet in bond via Port Arthur.

The Decline in Billets.

A glance at the diagram which we print herewith will enable a more comprehensive estimate to be made of the decline in steel billets than even a close study of columns of figures We have plotted the weekly quotations at Pittsburgh, and have added a line to represent the fluctuations in Bessemer pig in the same market. The causes for these fluctuations are not far to seek. The year 1889 was one of moderate activity in the rail trade, and a rapidly increasing tonnage of Bessemer steel for other purposes than rails, notably wire and cut nails, plates, structural material and bars. For the first time the consumption of soft Bessemer steel for miscellaneous purposes approached that for rail steel. An idea may be obtained by the following computation, which, however, cannot, of course, lay claims to accuracy: The total production of Bessemer-steel ingots, according to the official figures compiled by James M. Swank, was 3,281,829 net tons. The quantity of Bessemer-steel rails made was 1,691,264 net tons, to which must be added for oxidation, &c., about 10 per cent., leaving 1,421,439 tons for other purposes.

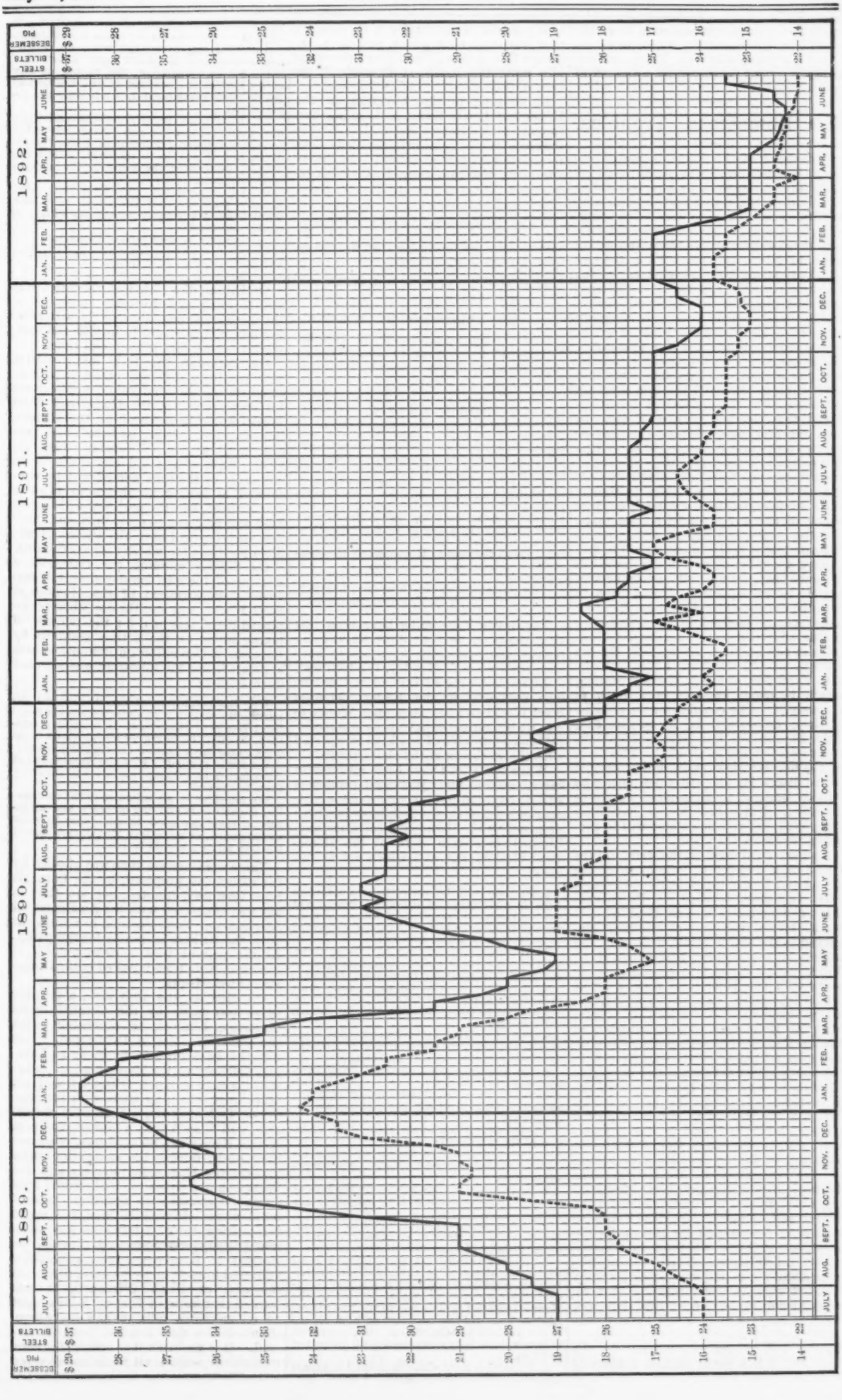
In 1890 the demand for rails and for other forms of Bessemer steel was heavy, the production of rails being 2,091,978 net tons, calling for about 2,301,176 tons of ingots and leaving 1,830,359 net tons of ingots for soft steel, the total of Bessemer ingots having been 4,131,535 net tons.

The financial disturbances following the Baring failure in Europe, and the long train of financial disasters to railroad companies which followed it, cut down the production of rails to 1,448,219 tons, so that the total production of Bessemer ingots fell to 3,637,107 tons, although the computed soft-steel tonnage rose to 2,044,067 net tons. In tabular form we have the production as follows:

	Rail ingots. Net tons.	Soft steel. Net tons.	Total ingots. Net tons.
1889.....	1,860,390	1,421,439	3,281,829
1890.....	2,30 ,176	1,830,359	4,131.535
1891.....	1,593,040	2,044,067	3,637,107

So far as the raw material, the Bessemer pig, is concerned, its fluctuations are, of course, governed by the total product, since it makes no difference whether it is converted into rails or billets. It rose with the quickened demand, which in the case of rails often anticipates actual consumption six months or more. When the market for rails narrowed so greatly, in 1891, some of the capacity of the rail mills was diverted to billets, and thus there was at no time any scarcity. As a matter of fact, competition in soft-steel billets was exceedingly keen, so that the price followed closely the receding values of Bessemer pig. The latter fell continuously because ore, and to a lesser extent coke, declined from the highest prices, and because cost of production was steadily lowered by reductions in freight charges, a moderate reduction in wages and the lessened cost which grew out of improved furnace practice.

The leadership in the decline in billets has been frequently charged to the Carnegie company. We have reason to believe that immediately after the Baring failure large sales at a sharp reduction in price were made, but since then other Pittsburgh and some Wheeling concerns have at times led the decline, and some pretty sharp cuts must be credited to Eastern works. Whatever the facts may really be, there are half a dozen concerns in the country who are convinced of their ability to make good soft steel as cheaply as any competitor, including the Carnegie Steel Company, and their course as sellers is often quite as radical and as influential upon the markets. It has been altogether too much the fashion in the trade at large to



THE FLUCTUATIONS IN THE PRICE OF STEEL BILLETS (FULL LINE) AND BESSEMER PIG (DOTTED LINE) AT PITTSBURGH.

credit the Carnegie interest with being the leaders in the decline. Whatever odium or glory is associated with the great fall in prices should be shared by a number of others.

The Homestead Troubles.

An official of the Carnegie Steel Company, Limited, who was interviewed on the situation last week by a representative of *The Iron Age*, stated that the firm were not losing any time, but were doing everything that could be done in order to secure men to take the places of those who would refuse to return to work. From the fact that only about 250 are affected by the proposed reductions in wages, it will be at once seen that the firm have not such a difficult task on hand to supply workmen to operate the Homestead plant as would be supposed. While it is true that nearly all the employees are heartily in sympathy with the strikers, and have announced that they will stay out until the firm concedes the demands of the strikers, it is not believed that this will be carried out. In fact, the firm have evidence that just as soon as protection is assured to those who will return to work a very large number of their former employees will gradually avail themselves of the opportunity to resume their former positions. Already a large supply of cots and of food has been taken into the works, and present arrangements indicate that it is the intention of the firm to keep a number of men inside the works for some time, or until all appearances of trouble have disappeared. In addition to this, the Carnegie Steel Company, Limited, have recently inserted in the Pittsburgh papers advertisements addressed to contractors and builders, asking bids for the erection of 100 dwelling houses on the City Farm plan of lots at Munhall Station, which is about one-half mile north of Homestead. The contract for the erection of these houses will be let on Saturday, July 23, and the firm have reserved the right to reject any or all bids. This move of the firm is taken as an indication that living places for the non union men who will be brought to Homestead are to be provided. Until these houses have been completed, the non-union men will be provided for inside the plant.

The principal event of the week was the strike of a number of employees of the Upper and Lower Union Mills of Carnegie Steel Company, Limited, at Pittsburgh. As we announced in our issue of last week, several meetings of the men employed in the above plants were held, and at last it was decided that unless H. C. Frick would consent to reopen negotiations with the Homestead men, a strike would take place. As was expected, Mr. Frick emphatically declined to confer with the Homestead men as members of the Amalgamated Association, and as a result a large number of the skilled men in the above plants have gone out on strike in order to show their sympathy with the Homestead workmen. To say that this action of the men is ill advised and will do more harm than good is hardly necessary, and, in addition to this, it is a direct violation of the by-laws and constitution of the Amalgamated Association. The Carnegie Steel Company, Limited, signed the Amalgamated Association scale for the Upper and Lower Union Mills almost as soon as presented, and for this reason the men had no cause whatever to take the action noted above. There was no dispute about wages, the men being perfectly satisfied with the remuneration they received, and the strike at this time will undoubtedly result in much harm to the Amalgamated Association, as that organization had always prided itself on the fact that it had never broken a contract with any firm.

Watchmen in the employ of the firm are now guarding both plants, and it is expected that they will be allowed to remain idle until the strike at Homestead has been settled.

In addition to the workmen in the Upper and Lower Union Mills going out, the men at the Beaver Falls Mills of the Carnegie Steel Company, Limited, have seen fit to take similar action. On Friday afternoon, the 15th inst., H. C. Frick received a telegram from Beaver Falls, which read as follows:

We, the Amalgamated Association of Beaver Falls, the rod mill, wire mill and nail mill, have come to the conclusion that we will refuse to work until such time as H. C. Frick, chairman of the Carnegie Steel Company, Limited, is willing to confer with the Amalgamated Association in order to settle the Homestead affair. ARTHUR THORNTON
Chairman of the Committee.

Immediately upon receipt of this Mr. Frick sent a telegram to Jos. Wrigley, superintendent of the Beaver Falls Mills at Beaver Falls, Pa., which read as follows:

You will please say to Mr. Thornton, chairman of the committee, and ask him to so notify the men, that if they, composing Amalgamated Association at Beaver Falls Mills and who signed an agreement with us for one year, do not go to work on Monday next, or when you are ready to start, we will consider their failure to do so a cancellation of the agreement existing between us, and when those works do resume it will be as non-union, and former employees, satisfactory to us, who desire to work there will have to apply as individuals. You can say that under no circumstances will we confer with the men at Homstead as members of the Amalgamated Association.
(Signed)
THE CARNEGIE STEEL COMPANY, LIMITED,
By H. C. Frick, Chairman.

The Beaver Falls mills have been idle since the latter part of June undergoing repairs, and operations were not to have been resumed until Monday, the 18th inst.

Attempts by the strikers to induce the men employed in the Edgar Thomson Steel Works and the Duquesne Works to also go out on strike have been unsuccessful, and no trouble of any kind is expected with the workmen at the above plants.

When operations have been resumed at the Homestead Steel Works all employees will be required to observe a strict obedience of a set of rules which have just been prepared by the Carnegie Steel Company, Limited, to govern work at the Homestead Steel Works, and which are as follows:

1. No one will be permitted to interfere with the civil, religious or political opinions of the workmen, and no political notices or posters will be allowed to be circulated or posted on the property of this association.
2. All employees wishing to absent themselves for a turn, or longer, must first apply to and receive permission from their foreman; and all persons working on night turn must make their application before 4 o'clock p.m. All persons violating this rule will be subject to discharge.
3. Employees are required to exercise economy in the use of all material, and to keep the machinery and works neat and clean.
4. An employee who, through gross carelessness or malice, destroys the property of this association, or is found stealing or carrying away the property of this association, will be discharged.
5. Any employee who, on account of violation of the criminal laws of the country, is arrested, and by reason of his arrest leaves his position vacant, will be discharged and his position filled.
6. Any employee who habitually neglects or refuses to pay his debts will be subject to discharge.
7. The use of intoxicating liquor by any employee while on duty is absolutely forbidden under penalty of immediate discharge.
8. All superintendents and foremen must pay strict attention to the rights and privileges of employees. Where a position is vacant the employee of longest service at the Homestead Steel Works, and in the line of promotion, must fill the vacancy, without regard to his political or religious opinions, provided, however, he is fully competent to fill the higher position.
9. Excepting only where a special contract has been made, as for advice, counsel, &c., every salaried employee of this association is expected to devote his entire service to the interest of his employer; and while no restriction is sought to be placed upon investments made by any employee, the taking of any active part in the conduct of the business in which such investment is made will not be permitted.
10. Department superintendents and foremen shall give hearing and prompt attention to any reasonable complaint or claim for redress, and if unable to amicably adjust the matter, shall refer the same to the general superintendent.
11. All department superintendents and foremen must see that the above rules and regulations are strictly complied with and rigidly enforced.

By order of the Board of Managers,
H. C. FRICK, chairman.
PITTSBURGH, PA., July 1, 1892.

On Friday, the 15th inst., a notice was sent to every man formerly employed in the mechanical and laboring departments, inviting him to return to his old position, work to commence at the usual time.

On Saturday, the 16th inst., notices were posted in different places in Homestead stating that individual applications for employment at the Homestead Steel Works would be received by the General Superintendent, either by letter or in person, until 6 p.m., Thursday July 21, 1892. Such of the old employees as do not apply by the time named will be considered as having no desire to re-enter employment, and the positions which they held will be given to other men, and those first applying will have the choice of unfilled positions for which they are suitable.

On Sunday morning, the 17th inst., a meeting of the men employed in the mechanical departments of the Homestead Steel Works, and also the day laborers employed there, was held for the purpose of taking action on the notices sent out by the firm. A Committee on Resolutions was appointed, and the following was adopted unanimously:

We, the employees of the mechanical departments and day laborers of the Carnegie Steel Works of Homestead, in meeting assembled, do offer the following as our views in regard to the labor trouble existing at present:

We are in sympathy with the Amalgamated Association and pledge ourselves to stand by them to the end.

We consider it an injustice to the mechanical departments and day laborers, and an insult to their manhood, to ask them to work under guard, as we believe that in this land of the free all men should be free.

These workmen are in no way affected by the reductions proposed by the Carnegie Steel Company, Limited, nor are they in any way connected with the Amalgamated Association. Their decision to remain out with the strikers is purely for sympathy. At the present time a large number of workmen have been installed in the Homestead Steel Works.

On Monday, the 18th inst., a decisive move was made by the Carnegie Steel Company, Limited, in connection with the recent troubles at Homestead. This was the swearing out by F. T. F. Lovejoy, secretary of the above firm, of informations against Hugh O'Donnell and six other men, charging them with the murder of T. J. Connors, a Pinkerton watchman, and Silas Waine, a former workman in the Homestead Steel Works, who met their death during the memorable battle between the Homestead strikers and the Pinkerton detectives on Wednesday, July 6 last. Warrants were immediately issued for all of the above seven men, but up to this writing the only man who was taken into custody was John J. McLuckie, the Burgess of Homestead, who voluntarily delivered himself up to the authorities. In the case of Hugh O'Donnell, it was learned that he went East on Sunday last on an unknown mission, and his whereabouts at this time has not been discovered. It is probable that before this issue reaches our readers, all of the above seven men will be prisoners in the county jail at

Pittsburgh, awaiting trial on the grave charge of murder.

It is stated on good authority that the firm have a list of 213 men against whom similar informations will be made. It is the purpose of the firm to serve four or five of these each day until the entire number have been served with warrants on the charge of murder. A hearing in the case of the above men has been set for Friday, July 22, and will be held at Pittsburgh.

(*By Telegraph.*)

PITTSBURGH, July 20, 1892.

Information against four men of the Homestead rioters charging them with murder was made by J. S. F. Lovejoy, secretary of the Carnegie Steel Company, Limited, yesterday. Similar information will continue to be made right along by the firm, as sufficient evidence against a large number of the men who participated in the riots on July 6 has been secured, and all these cases will be prosecuted to the end. Regarding the men who were on the property of the firm on the day of the riots, but who were there more through force of circumstances, and did not take an active part in the riots, it will depend upon their future conduct whether they will be prosecuted. If they interfere in any way with the starting up of the Homestead Steel Works information will at once be made, as sufficient evidence has been gathered by the firm to insure conviction. At this time, over 200 men are at work in the plant and this number is being increased right along. The firm have decided to delay repairs for the present and the entire plant will be put in full operation just as soon as sufficient men have been secured to operate it. The open heartb department will probably be started this week.

The Keystone Horseshoe Company of Philadelphia signed the Amalgamated Association iron scale yesterday.

Howe, Brown & Co. of Pittsburgh have issued a circular in which they state: "While we have not continued actively in the manufacture of crucible fire-box steel to any great extent, but have been directing our exclusive efforts to the manufacture of fine steel for tools, springs, &c., we have always had the conviction that open-hearth steel or basic steel for fire-box use would eventually prove unsatisfactory, and that we could and would at some time return to the manufacture of the same crucible fire-box steel which was formerly bought by all the leading locomotive works and railroads in this country, many thousand locomotives being equipped with fire boxes made from our steel, some of which we have reason to believe are still in existence, having lasted 20 years or more. The fact that our plant is just as well equipped for the manufacture of open-hearth steel as for crucible will no doubt protect us from the charge of having any personal preference in advocating our opinion that fire box steel produced by the crucible process is the best and most reliable, and we to-day are as able to produce fire-box steel for locomotives that will give as good results as the steel produced by this concern 20 or 25 years ago."

Charles H. Cady of Cleveland, Ohio, has been appointed general manager of Witherbees, Sherman & Co.'s mines on Lake Champlain. Mr. Cady was formerly the general manager of the Chapin mine on Lake Superior.

San Francisco News.

(*By Telegraph.*)

The *Examiner* of this city on Saturday had over a page devoted to showing that the Temescal tin mines were to all intents and purposes a swindle; that $2,000,000 had been expended on them, while only about 150 tons of tin had been produced; that this is worth but one-third of the whole outlay; that the richest part of the deposit, which was in the nature of a pocket, had to all intents and purposes been worked out; that the representations as to there being 100 distinct veins was totally without foundation as far as to there being that number or indeed any smaller number of such veins of any value, and that Captain Harris, late superintendent of the mine, has resigned and gone to London to expose the whole thing. In reply to this E. W. Freeman of South Riverside asserts that the report is without foundation; that the mine shows up more and richer ore than ever, and that at no time since the work was begun has the mine worked so well. The statements are directly contradictory of each other. They are only agreed on one point and that is that the search for ore is being continued. The *Examiner's* informant is John J. Quick, a former employee of the mine. Judgment as to the truth or falsity of the charges should be suspended for a few days.

Freights on Southern Pig Iron.

The Queen and Crescent route has issued supplement No. 1 to Eastbound pig iron tariff No. 3, giving rates on pig iron in carload lots from Southern furnaces to points in Pennsylvania and New York. The rates to some of the more important points are given below, the reductions having gone into effect July 7 and the advances July 17:

To	From	Per ton 2268 pounds.	
		Dayton and Rockwood, Tenn.	Birmingham district.
Pennsylvania:			
Allentown		4.50	4.61
Altoona		4.43	4.68
Bellefonte		4.56	4.81
Bloomsburg		4.54	4.79
Catasauqua		4.50	4.75
Conshohocken		4.21	4.31
Danville		4.40	4.54
Easton		4.50	4.61
Harrisburg		3.67	3.77
Lancaster		4.06	4.16
Lebanon		3.93	4.03
Philadelphia (rail and water)		4.05	4.01
Philadelphia (all rail)		4.35	4.31
Pottstown		4.21	4.31
Pottsville		4.40	4.55
Reading		4.21	4.31
Scranton		4.84	5.09
Steelton		3.80	3.90
New York:			
Albany		4.95	5.65
Elmira		4.69	4.94
New York (rail and water)		4.05	4.01
Oswego		4.70	5.20
Rochester		4.40	4.90

The Buffalo Scale Company of Buffalo, N. Y., now occupy their new factory. The establishment has a frontage of 615 feet on Scott, Illinois and Mississippi streets. The freight depots of the several railroads are in close proximity, as is the case of all the steamboat lines. Besides these conveniences it is adjacent to the Erie Canal. The general offices of the company are on the ground floor, entering from Scott street. In the large wing running along Scott street is the machine shop and emery room. The corresponding wing on the opposite angle is devoted to the workers on wagon and track scales, which is an important branch of the firm's business. A large building in the rear of the center court is filled up with the most modern smelting apparatus and the foundry. The core oven occupies a place at one side. Continuing around the rear of the court the fire proof pattern house is reached. A spacious barn for the draft horses owned by the company adjoins it. After this comes the cleaning shop. In the center of the court is situated the power house, where a large engine supplied with steam from an upright boiler of the Manning style furnishes the power for the several shops Rope transmission is used. The upper floors, which are reached by three elevators, contain a number of workrooms. On the second floor of the main building directly over the offices are the sample rooms, where the various products of the manufactory are displayed. The second floor of the right wing contains the carpenter shop, the portable and dormant scale room and the beam and sealing room. The left wing on this floor is used as a storeroom for large scales. The right wing of the third floor is devoted to the paint shop and japanning ovens. The upper portion of the main building is occupied by the sealing rooms. Here all weights are sealed to a standard. The large wareroom where the small scales and other products are stored ready for shipment is on the third floor of the right wing.

OBITUARY.

JOSEPH HENRY CONE.

Joseph Henry Cone, senior member of the hardware firm of J. H. & W. E. Cone, Hartford, Conn., died on the 7th inst., at his home in that city. Several years ago Mr. Cone suffered a severe attack of pneumonia, from which he never entirely recovered, and subsequently he was seriously afflicted with grip, which still further weakened his already enfeebled constitution. His death was the climax of a long and distressing illness that had incapacitated him for business for the past year. He was 56 years of age. Early in life he entered the hardware store of George M. Way & Co., where he learned the business. In 1861 he entered into partnership with Roderick Terry, the firm name being Terry & Cone. When Mr. Terry retired the firm became J. H. & W. E. Cone by the admission of Mr. Cone's brother, Col. William E. Cone. In 1872 the firm purchased and remodeled the building 87 and 89 Asylum street, which they have since occupied. Mr. Cone never held public office, although he was a prominent business man and held in high esteem.

Since our issue of last week, the following named firms have attached their signatures to the Amalgamated Association Iron Scale for the year 1892-93. These signatures were given with the understanding that any concessions made when the final scale is adopted will be allowed. The list of names is as follows:

Valley Steel Nail Works, Belleville, Ill.; Rome Cotton Tie Mfg. Company, Rome, Ga.; La Belle Iron Works, Wheeling, W. Va.; H. Lloyd's Sons Company, incorporated, Pittsburgh, Pa.; the American Wire Nail Company, Anderson, Ind.; Central Iron and Steel Company, Brazil, Ind.

MANUFACTURING.

Iron and Steel.

The Carnegie Steel Company, Limited, are not the only firm in Pittsburgh that are having trouble with their employees at the present time. Singer, Nimick & Co., Limited, of that city are also having an experience of this kind. In the year 1887 a bitter strike occurred at the plant of this firm, which was won by the firm, and since that time their mill has been operated with non-union men, wages, however, being as high as were paid under the Amalgamated Association scale. In the melting departments the workmen have been receiving about 5 per cent. higher wages than called for by the Amalgamated Association scale, and upon the firm requesting a reduction of 5 per cent. the men refused to accept it, and went out on strike. As soon as the strike occurred the superintendent of the melting department informed the men that they had all been discharged, and if they wished to return to work they must apply as individuals and not as a body. No settlement of the trouble has yet occurred, but it is expected that a number of the men who went out on strike will agree to the reduction in price by the firm and return to work this week.

The Shenango Valley Steel Company, who are erecting a Bessemer steel plant at New Castle, Pa., have received a large number of inquiries for situations from workmen at Homestead who are out on strike. It is stated that over 100 such inquiries have been received and filed by the firm for future reference. It is not expected that the plant of the Shenango Valley Steel Company will be ready for operations before October 1 next.

The West Superior, Wis., rolling mills were shut down and all Amalgamated men and others who participated in the recent demand for the signing of the scale were discharged.

The Markee Pressed Steel Company, a concern recently incorporated under the laws of New Jersey, with a capital of $200,000, to manufacture articles in pressed steel for car construction and the hardware trade, have elected the following Board of Directors: James H. Lancaster, Alex. Kidley of New York City and Frank Morrow of Brooklyn, R. T. Markee and L. W. Gruber of Philadelphia. The directors organized with the following officers: R. T. Markee, president and treasurer; L. W. Gruber, secretary. It was also agreed to establish a branch office in Philadelphia.

The Berlin Iron Bridge Company of East Berlin, Conn., have received the contract for the new tin-plate works which Hughes & Patterson are to erect at Philadelphia, Pa. The buildings will be of iron from the designs of the Berlin Company. The main building will be 40 feet wide by 253 feet long, with a wing of the same width 300 feet long, both two stories high. The rolling mill will be 120 feet wide by 160 feet long, with an annealing room 75 feet wide by 160 feet long. The whole plant will require about 800 tons of iron to be used in its construction.

The pipe foundry at Rusk, Texas, was the successful bidder for 10,000 tons of cast-iron pipe to be furnished to the city of Austin. Vigorous efforts were made by the other Southern pipe foundries to capture this contract, but they were all too high in their prices. The foundry at Rusk is connected with a charcoal blast furnace, the whole plant being operated by convicts from the penitentiary at that point.

Last week the Leechburg Foundry & Machine Company of Pittsburgh, with works at Leechburg, Pa., received an order for a Mesta patent pickling machine from the N. & G. Taylor Company of Philadelphia, Pa. A pickling machine of the above type recently placed in the works of the Canonsburg Iron & Steel Company of Canonsburg, Pa., is doing excellent work, and is highly satisfactory to the firm. The Leechburg Foundry & Machine Company have also received an order from the Bellaire Nail Works, Bellaire, Ohio, for their supply of ingot molds for the last six months of this year.

The Reading furnaces are to blow out soon.

The rolling mills of the Catasauqua Mfg. Company at Catasauqua have been started.

The blast furnace of the Coleraine Iron Company at Reddington, Pa., which has been idle since April, has blown in. During its idleness the furnace was thoroughly overhauled and repaired, and a low-pressure engine substituted for the high-pressure engine formerly used.

Falling Spring furnace at Chambersburg, Pa. has blown in after a thorough overhauling.

At a recent meeting of the stockholders of the Lehigh Iron Company, at Allentown, Pa., proposition was made looking to the reorganization of the company on a basis of $300,000 capital, the plant to be bonded for ten years at 5 per cent. interest, for $125,000. A sufficient number of stockholders indicated a willingness to subscribe the amount of bonds necessary to insure a reorganization, it is stated, should the creditors also take favorable action.

The Allentown Rolling Mill, at Allentown, Pa., is to start next week.

The company organized some time ago to renew and operate the old Union Iron Works, at Buffalo, N. Y., have reorganized under the title of the Buffalo Furnace Company. The capital of the company is $200,000, and the directors named in the articles of incorporation are M. A. Hanna and L. C. Hanna of Cleveland; Frank B. Baird, F. M. Inglehart and George E. Mann of Buffalo.

The furnace of the Warwick Iron Company, at Pottstown, Pa., has blown out for repairs after running successfully since October, 1889. The repairs and relining of the furnace will occupy two months.

John T. Whitelaw of Cleveland, Ohio; Geo. A. Laughlin, president of the Cleveland Axle Mfg. Company, and H. O. Crane of Chicago have purchased the interests of G. R. Root and others in the Irondale Steel and Iron Company of Anderson, Ind., and will operate that plant in the future. The capacity of the mill, which at present amounts to 20 tons of steel and iron sheets, Nos. 14 to 33, per day, will shortly be enlarged by extensive additions to the plant, and when this has been completed the capacity will be about 3) tons per day. At a meeting of the new company, held in Cleveland, Ohio, on the 12th inst., the following officers were elected: Geo. A. Laughlin, president; Jno. T. Whitelaw, vice-president; H. O. Crane, treasurer and general manager. The office of H. O. Crane will be located at the works, at Anderson, Ind.

The Bessemer steel plant of the Bellaire Nail Works, Bellaire, Ohio, is being overhauled and improved. The blast furnace of the above firm continues in operation, turning out about 250 tons of Bessemer iron per day.

Application has been made to the Governor of Pennsylvania for a charter of incorporation for a concern to be known as the Salem Iron Company. The incorporators are Jno. McKeefry, Wm. D. McKeefry, Neal J. McKeefry, Weld A. Schoyer and Alex. Kunzler.

Machinery.

The Brown & Sharpe Mfg. Company of Providence, R. I., announce that their works will be closed from August 1 to 13, inclusive, for annual vacation and repairs. The office will be kept open as usual and all orders will be filled for machinery or tools described in their catalogue and usually kept in stock.

The Hercules Iron Works of Chicago, Ill., have added to their already extensive line of ice machinery and other specialties the manufacture of a new line of forging and bending machines for forging and forming iron and steel. One of the special features of their machine is the rapid manufacture of turn buckles of all sizes. They have also begun the manufacture, and already placed upon the market, a new design of a light spring hammer, which takes the place of more expensive tools where a hammer with a blow ranging from 15 to 30 pounds is needed. The hammer is so arranged that one or more can be operated with a single belt. They are to be attached to posts or the side of a shop.

The La France Fire Engine Works at Elmira, N. Y., are now running night and day. Within the last week they have received orders for three new engines from New York City, one from Minneapolis, and within the last six weeks 18 orders for new engines have been booked. There are at present more than 100 skilled mechanics employed in the works. The company also do all the repairing of steam fire engines within a radius of many miles.

The Clipper Chilled Plow Company of Elmira, N. Y., are erecting a new building on William street. It has been made a necessity by the increase of business.

The business of E. L. Hall & Co., dealers in machinery, of 19 North Seventh street, Philadelphia, was last month transfered to a stock company, who were incorporated under the title of the Philadelphia Machinery and Supply Company. The officers of the reorganized concern are E. L. Hall, president; J. B. German, vice-president, and E. Eckert, secretary and treasurer. The company have the sales agency in Philadelphia for several well-known manufacturing firms, including the Lodge & Davis Machine Tool Company of Cincinnati, Ohio; F. E. Reed & Co. of Worcester, Mass.; Henderson Machine Tool Company of Philadelphia, &c. They are about to add a department for the handling of second hand machinery. The Philadelphia Machinery and Supply Company report their business during the initial month of the new régime as highly satisfactory; orders received in considerable volume, widely distributed; and prospects for the future encouraging, despite the general slackness and depression. They are now engaged in placing the additional machinery for the extension of plant now being undertaken by the Henderson Machine Tool Company, Philadelphia.

The Lloyd Booth Company, proprietors of the Falcon Foundry and Machine Works, at Youngstown, Ohio, last week consigned five cars of rolling-mill machinery to the Corning Steel Company at Hammond, Ind. This will be followed by additional shipments of about 20 cars. The above firm have received an order from the Falcon Iron and Nail Company of Niles, Ohio, for two 126-inch knife squaring shears, and an order for a similar shear from the Reeves Iron Company of Canal Dover, Ohio.

Thos. Carlin's Sons of Allegheny, Pa., have under construction two five-drum hoist engines for a Pittsburgh firm. The engines are for handling coal and ashes, and are designed to operate derricks which handle grapple dredges, the several drums being used to hoist the load, operate the trip, raise the boom, thus changing the radius of grapple for loading and unloading, and to swing the derrick, thus putting the machine under complete control of the engineer.

The Glover Foundry Company of New Castle, Pa., will shortly erect a plant for turning chilled rolls.

The financial failure of the John Doty Engine Company of Toronto, Ont., has been announced. The estate, which is valued at $250,000, will be sold at auction.

Hardware.

Denver Hardware Mfg. Company, Lakewood, Col., are enlarging their plant by the erection of an iron foundry, 60 x 84 feet.

The works of the American Screw Company comprise five large mills, including the New England mill on Eddy street, the Eagle and Bay State mills at the North End, all in Providence, R. I.; the Canada mill at Hamilton, Ont.; and the mill at Leeds, England, which is run under the name of the British Screw Company. The Leeds mill, which is rapidly getting into operation, is referred to as the most remarkable of these, in many respects. President Angell claims that it will be the finest mill ever built. It is also a decidedly unique structure to be found on English soil, from the fact that it is thoroughly American in every detail. The timber was shipped from the southern parts of this country, and the building is furnished with machinery displaced by the new machinery at the New England mill. So distinctively American is it that a man was sent over from America to put on a gravel roof, as such a thing is unknown in England. The mill is also equipped with American boilers, an American electric-lighting plant, belting made by Burgess of Providence and machine tools from Worcester. They even sent over a supply of common corn brooms, as those useful articles cannot be obtained in Europe.

The Pullman Sash Balance Company, Rochester, N. Y., have introduced machinery for the production of the various parts of the Pullman sash balance. One machine is referred to as being almost human in its actions, being used to wind up the springs, which in turn wind up the aluminum bronze tapes. It is stated that no slipshod work passes out of this establishment, but that every article is subjected to severe tests, and if found defective in material or construction is rejected.

Kenton Lock Mfg. Company, Kenton, Ohio, advise us that their business has increased fivefold in the last two years, necessitating three new additions to their factory. They remark that they are the only lock manufacturing concern west of the Allegheny Mountains that make a full line of builders' hardware, and that they have every convenience for turning out first-class work, in entirely new designs, with new and improved labor-saving machinery, having many special tools for cheapening work. They also refer to the manufacturing advantages of being located in the great natural gas and oil belt and on three trunk lines of railroads.

An extensive plant has been designed for the Simonds Mfg. Company, manufacturers of saws and cutlery, to be erected at Seventeenth street and Western avenue, Chicago. The main building will be two stories high, 250 x 50 feet, and, in addition to this, will have an engine room 64 x 35 feet. Another building to be used for the manufacture of cutlery will be one story, 123 x 45 feet. All the buildings will be constructed of stone and pressed brick, and in the most substantial manner.

Miscellaneous.

P. P. Emery Mfg. Company, brass founders and coppersmiths, Springfield, Mass., have purchased the coppersmith business of P. J. O'Connell & Co., same city, and consolidated it with their own. Both concerns are well established and the business will be further pushed under the new arrangement.

The contract for the iron bridge to be built by the towns of Owego and Pandor, N. Y., over the Owego Creek, has been let to the Owego, N. Y., Bridge Company.

On the morning of July 7, at Watertown, N. Y., the foundry of the Eames Vacuum Brake Company was destroyed by fire. It started in the corercom. The loss on the pattern shop was $1000; insured. The iron foundry was a building 100 x 75 feet, and, while its frame still stands, it will have to be practically rebuilt. The entire loss will probably not exceed $5000. Thirty-seven molders were employed. They will do work for the company at the Lord Foundry until the plant is rebuilt.

The Point Pleasant Delaware Bridge Company will build a bridge across the Delaware River at Point Pleasant, Pa., to replace the structure destroyed by fire last March. Plans and specifications have been prepared by the engineer of the company, Frank C. Roberts, C.E., of Philadelphia, and the contract has been awarded to the Toledo Bridge Company of Toledo, Ohio. The bridge will consist of four spans of 175 feet 6 inches and one span of 179 feet 7½ inches.

The Avery Stamping Company of Cleveland, Ohio, who are the original manufacturers of pressed or stamped steel hollow ware—making the well known Never-Break wrought-steel cooking utensils—and are the sole manufacturers of seamless steel elevator buckets, inform us that they have recently reorganized their mechanical department. They have never before been in such an excellent condition for stamping or pressing heavy and light work as now.

Among recently authorized corporations in Illinois are the following: The Illinois Foundry Company, Chicago; capital stock, $1,000,000; incorporators, J. O. Lee, J. B Renshard and William S. Cluff. Waukegan Heat, Light and Power Company, Chicago; incorporators, John D. Cameron; James D. R Graham and Calvin E. Brown. Alton Paving, Building and Fire Brick Company, Alton; capital stock, $60,000; incorporators, E. Marsh, B. Schiep and Charles W. Milnor. The Western Brass Company, Chicago; capital stock, $50,000; incorporators, George F. Hughes, E. T. Coman and D. J. Wile. The American Pneumatic Smelting Company, Chicago; capital stock, $50,000; incorporators, William J. Chalmers, Robert L. Tatham and John T. Richards. Keystone Woven Wire Fence Company, Tremont; capital stock, $30,000; incorporators, Peter Sommer, John Sommer and Peter W. Sommer. The Computing Scale Company, Chicago; capital stock, $50,000; incorporators, Raymond W. Beach, R. H. Corlett and E. G. Mason. The Clark & Windsor Wire and Spring Company, Joliet; capital stock, $25,000; incorporators, Albert C. Clark, Benjamin Windsor and James C. Jones. The Standard Wheel Company, Chicago; capital stock, $2,000,000; incorporators, Robert G. Hall, George W. Northrup, Jr., and Benjamin V. Becker.

The marine brake invented some years ago by John McAdams of Brooklyn, N. Y., for the purpose of quickly checking the speed of a vessel or bringing it to a standstill to avoid a collision or for any other purpose, has been tested before a board of naval inspectors. The tests made were pronounced entirely satisfactory. The object of the tests was not stated.

J. M. Couper of Cave Springs, Ga., is organizing a company to build a ferromanganese furnace at that place.

The Dominion Government July 12 passed an order-in-council which in substance gives equal rights to subjects of Canada and the United States in transporting grain by the St. Lawrence route. No discrimination, so the Government would have it understood, was ever intended; all the trouble arises from a slight mistake in one of the official documents. So the alleged grievance no longer exists, and as there is nothing to retaliate there can be no retaliation. But Secretary Foster does not take exactly this view. The order referred to, in his opinion, applies only to exports going by Montreal, which are of trifling importance.

The Egan Company of Cincinnati, Ohio, are about to issue a handsome catalogue of nearly 300 pages.

TRADE REPORT.

In nearly all markets the principal activity of agents of mills and of merchants is to take care of customers, so far as the prompt delivery of materials is concerned. What new business there is in Finished Iron and Steel is confined to the shifting of orders from idle mills to works in operation and to dealers who happen to carry stock. There has been some canceling of orders and some replacing of contracts, the latter occasionally at a notable advance. But on the whole sellers, while in full control of the market, have been acting cautiously, and only a very moderate advance has been made to regular customers, amounting to $1 @ $3 per ton. This applies to the whole line of Structural Material, Bars and Plates.

In Steel Billets some sales have been made at Pittsburgh for prompt delivery at $24, but the demand is not large, since the makers of Wire and its products are able to draw upon accumulated stocks to meet the requirements of customers. This affects also Wire Rods, which remain dull at Pittsburgh at $31.50 @ $32.

The Joliet mill has signed the scale. In Eastern Pennsylvania Billets are quoted $25.25 @ $25, with little business going. We note a sale of 3000 tons of Blooms by an Eastern Rail mill.

In Merchant Steel Chicago reports further large season contracts.

Steel Rails continue very quiet, the only transaction of magnitude being a sale of 10,000 tons by an Eastern mill to a Western road, which is chiefly interesting as indicating the harmony between the mills.

The principal event of the week in Pig Iron has been the reappearance as a seller of one of the leading Birmingham companies who had long kept out of the market. This is reflected by large sales in Cincinnati and may account for the weakening in the lower grades at Chicago. We understand that the total quantity placed East and West was about 20,000 tons, buyers taking for delivery during the next four months.

In Manganiferous Material a low sale is reported in foreign Ferro in Wheeling and a round lot in New York, with negotiations pending for about 5000 tons of 10 to 12% Spiegel. The latter is now also being made and offered by Pittsburgh.

There has been some movement in Copper, without any special news concerning the meeting which was to have been held at the close of last week. A short-lived improvement took place in Tin, while Lead flattened out under pressure to sell by speculative holders and a few producers. Spelter has been dull. Some lines of Coke Plates have been offered at slightly lower prices, without leading to much business.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 50 Dearborn street,
CHICAGO, July 20, 1892.

The situation shows no material change from that of last week. Dealers carrying stocks of Iron and Steel are in receipt of continued heavy orders from large consumers who have been caught short and the few rolling mills still in operation have had a good demand for prompt delivery. Prices are very firm and in some cases few advances have been made on the prices given last week, but the improved condition in this respect is understood on all sides to be only temporary. Sellers are, of course, disposed to make hay while the sun shines, and they are taking advantage of this opportunity to collect a better profit on the material they are handling; it must be said, however, that the advances so far are quite conservative, considering the large volume of inquiry from such a wide range of territory.

Pig Iron.—A very fair volume of business has been conducted during the past week. The movement embraces all kinds of Pig Iron. Considerable trade is being done in local Coke Irons. All the makers are not sharing in the business, which is confined mainly to the leading manufacturers. The largest makers here report their sales for the last week as running considerably ahead of shipments made. Although this is the time of year in which heavy shipments are customary, an increasing number of new orders is noted in addition to the renewals of old contracts. Reports are current of concessions, but these are by no means general. It is being confined to special cases in which competition with Southern Iron is involved. Prices on low grades of Southern Coke Irons have again receded during the past week, and we revise our quotations accordingly. In some instances prices of Southern Irons are now as low as they were early in the spring, if not lower. The low level anticipated by some consumers, however, has not been reached and it will probably be some time before these opinions are verified. There has been a fair inquiry for Charcoal Iron and frequent sales in small quantities. The principal sellers say there are more surprises in the way of higher prices being made than of low sales. Authentic information has been received of transactions at almost our highest quotation on Lake Superior Charcoal Iron, which is rather surprising, in view of the reports current of low offers. The largest companies have now sold so much of their product for the coming year that they feel a little more independent and are not pushing business so much as they were. They feel that they are losing nothing by waiting, and while they are not looking for any material advance, they believe that they will be able to sustain their present prices for at least some months. Quotations are as follows, cash, f.o.b. Chicago:

Lake Superior Charcoal	$16.50 @ $17.00
Local Coke Foundry, No. 1	14.50 @ 15.00
Local Coke Foundry No. 2	14.00 @ 14.50
Local Coke Foundry, No 3	13.50 @ 14.00
Local Scotch	15.00 @ 16.00
Ohio Strong Softeners	16.25 @ 17.00
Southern Coke, No. 1	15 00 @ 15.50
Southern Coke, No. 2	13.50 @ 13 75
Southern Coke, No. 3	13.15 @ 13.35
Southern, No. 1, Soft	13.50 @ 14.00
Southern, No. 2, Soft	13.00 @ 13 50
Southern Gray Forge	12 50 @ 13.00
Southern Mottled	12.50 @ 12.75
Tennessee Charcoal, No. 1	17.50 @ 18.00
Alabama Car Wheel	21.00 @ 23.00
Coke Bessemer	@ 15.50
Hocking Valley, No. 1	17.00 @ 17.50
Jackson County Silvery	17.00 @ 17.50

Bar Iron.—Plenty of small orders are coming forward for prompt delivery. The non union mills which have been working steadily this month are now very well sold up and it is difficult to find a manufacturer willing to contract for delivery in

August. The usual quotation is 1.65¢, half extras, Chicago, and it would require a very good specification to shade these figures. A very heavy demand is noted from stock, but prices are not being pushed any higher than was quoted last week—namely, 1.90¢ @ 2¢, half extras. Soft-Steel Bars are quoted in carload lots from mill at 1.65¢, Chicago, and in small lots from stock at 1.90¢ @ 2.10¢.

Structural Iron.—The mills in position to make prompt deliveries are getting 2¢ and better for Angles, Chicago delivery, 2.15¢ for Sheared Plates and 2.30¢ for Beams. There is a general disinclination among manufacturers to name prices for round lots of Beams for future delivery, as it is difficult to say when the mills will again be in operation. Beams from stock are held at 2.50¢; Angles, 2.20¢ @ 2.25; Tees, 2.40¢ @ 2.60¢; Sheared Plates, 2.25¢.

Plates, Tubes, &c.—The demand is fair for small lots of Plates from mill. The higher prices asked for Steel Plates is, however, bringing Iron Plates into stronger competition from Eastern works, and orders are being lost for Steel in a number cases for this reason. The demand is not as strong from store as was expected. The clearing of the mills stimulated business for a short time after the 1st of the month, but the volume of trade has now shrunk to only a fair business. The city boiler shops, while tolerably supplied with workmen, are not yet running full, which keeps down the demand from that quarter. For shipment from mill Tank Steel is quoted at 2.15¢, Chicago, and Flange Steel 2.40¢. Prices from stock are as follows: Nos. 10 to 14 Iron Sheets, 2.40¢ @ 2.50¢; Nos. 10 to 14 Steel Sheets, 2.50¢ @ 2 60¢; Tank Steel, 2.30¢ @ 2.40¢; Flange Steel, 2.75¢ @ 3¢; Boiler Tubes, 65 % @ 75 % discount

Sheets.—A lively inquiry is reported for Black Sheets. Some of the mills have started up, and the prospects are that the market will be better supplied in a short time. The demand for Steel Sheets is particularly heavy. Mill prices for No. 27 Sheets are now 2.90¢ @ 3¢, in Chicago, while the price from stock is 3.20¢ Galvanized Iron is still moving out of the warehouses here very rapidly. A great deal of buying has recently been done by some of the manufacturers' agents from other houses for their regular customers. Since the mills have again begun operations there is promise of a better supply very shortly. The price for mill shipments is still quoted at 70 and 5 % for Juniata, while small lots are going at 67½ % @ 70 %.

Merchant Steel.—Additional large contracts have been placed within the past week, covering year's delivery. The increased volume of business this year as compared with last year is shown by the statement made by one of the large manufacturers that they have sold as great a quantity in nine months of the year as they did last year in the entire 12. We continue to quote carload lots of Machinery, Open-Hearth Spring and Tire at 2¢ @ 2.20¢, Chicago. Store prices are as follows: Open-Hearth Spring Steel, 2.50¢; Tire, 2.25¢ @ 2.30¢; Crucible Spring, 3.50¢ @ 4.05¢; Tool Steel, 6.50¢ @ 8¢ and upward, according to quality.

Billets and Rods.—The Joliet Rod Mill resumed operation this week, the scale having been signed by representatives of the company and the Amalgamated Association. The only change made was a cut of 33⅓ % on the roller. In the absence of business we continue quotations nominally at $24 for Billets and $34.50 for Rods.

Rails and Track Supplies.—A fair demand is reported for Steel Rails. Transactions have not been heavy, but the aggregate of sales during the past week has been very good. No change is noted in prices, which still range from $31 to $32.50 for standard sections, according to quality. Iron Splice Bars show light advance and are now quoted at 1.75¢ @ 1.77½¢. Soft Steel Splice Bars are quoted at 1.80¢ for new business, Track Bolts with Hexagon Nuts are firm at 2.65¢ @ 2.70¢, and Spikes, 2.10¢ @ 2.15¢.

Old Rails and Wheels.—Sales of small quantities of Old Iron Rails are reported. The available supply is not very large, which accounts for the maintenance of prices. Quotations range from $17.50 to $18. Sales of Old Steel Rails have been made at $12.75 ℔ ton as they run. Select Rails are quoted at $12.50 for short pieces and $14 for long lengths. Old Car Wheels have been sold at $15.25. A very large sale is reported to have been made at equivalent to $14.50, Chicago. The movement of this mass material is irregular, and much depends on the circumstances attending each transaction.

Scrap.—Nothing new is reported in this line except that the Chicago Horse Shoe Company are starting their works at East Chicago, and have been buying some Wrought Scrap for consumption in their plant. Scrap is moving in fair quantities at about our quotations. Dealers quote selling prices as follows, per net ton: No. 1 Railroad, $16 @ $16.50; No. 1 Forge, $15 @ $15.50; No.1 Mill, $11; Pipes and Tubes, $11; Horseshoes, $16; Sheet Iron, &c., $7; Cast Borings, $5.75; Wrought Turnings, $8; Axle Turnings, $9.50 @ $10; Machinery Cast, $11.50 @ $12; Stove Plate, $9; Malleable Cast, $10; Car Axles, $18.50 @ $19; Fish Plates, $17.25; Mixed Steel, gross ton, $10.50 @ $11; Coil Steel, $15; Leaf, $16.50, and Tires, $15.

Metals.—Lake Copper is a little weaker and carloads are now quoted at 11.75¢, while small quantities are held at 12¢ Casting Copper is unchanged at 11⅛¢ for carloads and 11⅜¢ for small lots. Spelter is in request, with 4.75¢ quoted for August delivery. In Pig Lead the recent activity has been succeeded by a decided rest. This inactivity is regarded as no sign of weakness but simply a temporary lull. The largest trade of the year is to come and all the Lead produced will be required to fill consumptive requirements. Values have ruled from 4.10¢ to 4⅛¢, according to brand and delivery. Sales will foot up about 500 tons, principally spot delivery and early August.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., July 19, 1892.

The market shows no important change from last week, although the tendency is steadily toward higher prices for Finished Material. Those who quote at all ask a little more money, but the majority seem to have taken all the business they want for the present. If any one could give definite information as to the extent or duration of the strike, manufacturers would soon decide what prices to quote, but as that cannot be done, the disposition is to move cautiously along, taking care of their regular trade as much as possible, and extending ½¢ advance or a little more on outside business. The impression is that the delay in getting to work will not be very great, except in isolated cases, but as a measure of protection, those who are in operation are not jumping at every order that comes along, unless at prices which are entirely satisfactory to themselves. It is a new thing for sellers to have full control of the market, but that is the position today, with no immediate probability of their being called upon to surrender it. Notwithstanding this change of feature, it is not clear that there is any new or unexpected demand. The improvement—if such it can be called—is due to decreased production, which may continue for some time, or it may end quite unexpectedly. Meanwhile stocks have been worked down to so low a point that even immediate and general resumption would find the market in good condition and likely to show more steadiness in prices than for a long time past. Further advances in prices, however, would be a strong inducement to some mills to start up and perhaps bring to a summary close what might otherwise be a prolonged contest. Firmness in finished material, however, has not produced like conditions in crude material, showing that the firmness in prices in the former is due to decreased production rather than to increased consumption.

Pig Iron.—It is not clear that there is any change at all in this department. Some houses report a good inquiry, others say it is hard to make sales, so that one about offsets the other. Nobody claims to be asking more money, and none will admit that they are accepting less, which is probably true in both cases. Buyers are beginning to show some interest in the market, however, and are shopping around, so that if anything should occur to turn the market, they may be in shape to avail themselves of it immediately. It is thought that prices cannot possibly show further retrogression, and while no one looks for any immediate improvement, it is felt that the change when it does come will be in that direction. Consumers are therefore showing more watchfulness, first in picking up chance lots at concessions, and second, in having offers on hand ready for emergencies. Sales are chiefly at last week's prices, which are as follows, subject to the usual rebates on some Southern brands when delivered at points equivalent to Harrisburg or Baltimore:

American Scotch, No. 1x	$17.00	@	$17.50
American Scotch, No. 2x	16 00	@	16.50
Standard Penna (Lake Ore), No. 1x	15.00	@	15.50
Standard Penna. (Lake Ore), No. 2x	14.00	@	14.50
Standard Penna. (Lake Ore), No. 2 plain	13.50	@	14.00
Medium Quality, No. 1x	14.50	@	15.00
Medium Quality, No. 2x	13.50	@	14.00
Standard Virginia, No. 1x	14.50	@	15.00
Standard Virginia, No. 2x	14.00	@	14.50
Medium Va. and Southern, No. 1x	14.25	@	14.50
Medium Va. and Southern, No. 2x	13.75	@	14.00
Standard Penna. and Virginia Forge	13.00	@	13.50
Ordinary Forge	12.50	@	13.00
Hot-Blast Charcoal	18.50	@	21.00
Cold-Blast Charcoal	24.00	@	26.00

Low-Phosporus Pig.—There is some demand, but it is difficult to agree upon prices, although as a rule $17.50 @ $17.75, f.o.b. cars at furnace, is quoted for 0.03 and less.

Ferromanganese.—Market very dull. Sellers at $59, duty paid, for 80 %, with a few small lots taken at about that figure.

Steel Rails.—The market continues in the same dull and apathetic condition as for many months past. Prices are unchanged, and are likely to remain so, as there is no reason to suppose that any more Rails would be sold at $26 or $28 than at the current quotation. The 40,000-ton order mentioned some time ago appears to hang fire. The buyers claimed that they had Rails offered to them at American prices by a Belgian syndicate of bankers in exchange for bonds, but as the matter is still in abeyance, it is thought that there is a "colored gentleman somewhere around the wood pile." The price for Rails may have been all right, but what about the price for the bonds?

Steel Billets.—It is increasingly difficult to quote Billets with any degree of accuracy. Some makers intimate that $24.75 @ $25, delivered in this vicinity, would be about their price, but where bids are made at their own figures they are

either full or not running, or some other cause prevents them accepting orders. Sales have been made during the week, however, at $25, Schuylkill Valley, but since then bids at that figure have been declined, so that $25.25 @ $25.50 would probably be nearer the market. At present the feeling is very strong, but in case of an early settlement of the labor scale it is thought prices would slump back to the old figures, hence consumers are not disposed to follow the market except when they must do so to cover immediate requirements.

Muck Bars.—Prices are steady at $24.75 @ $25, delivered, but there is no great urgency in the demand, although holders are firm and talking higher prices.

Bar Iron.—There is quite an active demand, and prices are stiffening along the entire line. There is no difficulty in getting 1.75¢ @ 1.80¢ for first class Bars, but holders are cautious in quoting on large lots, as there is a good deal of uncertainty in regard to the supply during the next 30 days. No very protracted delay is expected, but as two or three weeks have already been lost, stocks are bare, and for a time, at all events, prices are likely to be firm, and may be still higher before a final adjustment is arrived at. Hughes & Patterson of this city started on Monday with non-union men, and there is no reason to doubt that so far as they are concerned they will hereafter run as a non-union mill.

Skelp Iron.—There is quite an active inquiry, but at the advance quoted by manufacturers no business has been done thus far. Some good-sized lots were taken last week at something near 1.65¢, delivered, but asking prices to-day are 1.75¢ for Grooved, and 1.85¢ @ 1.90¢ for Sheared.

Plates.—The demand has been very active during the past few days, and many of the mills are out of the market for the present, although regular customers are taken care of at about a $\frac{1}{10}$¢ @ $\frac{1}{5}$¢ advance on last month's prices. There is no doubt whatever that manufacturers are in full control and can make prices pretty much as they please, but in the belief that the Western troubles will not extend much further, they are using their advantage cautiously. They wish to avoid being too heavily loaded in case of unexpected delay in settling the labor scale, but at the same time to take in as much desirable business as possible in case of any sudden arrangement of a pacific nature. Opinions vary as to what the ultimate outcome will be, but in the meantime, as we said before, sellers can almost command their own terms within reasonable limits. Prices irregular, but latest sales were at figures about as follows, delivered.

	Iron	Steel.
Tank Plates	1.85 @ 1.95¢	1.85 @ 1.95¢
Shell		2.20 @ 2.25¢
Flange	2.70 @ 2.90¢	2.50 @ 2.60¢
Fire Box	3.00 @ 4.00¢	2.70 @ 2.80¢
Special qualities		3.25 @ 3.75¢

Structural Material.—Remarks in the preceding paragraph would be equally applicable under this heading. There is a good demand, with sales at an average advance of $2 @ $3 ₱ ton over June prices. To-day's quotations about as follows: Angles, 1.85¢ @ 1.90¢: Universal or Sheared Plates, 1.85¢ @ 1.90¢; Beams and Channels, 2.20¢ @ 2.25¢; Tees, 2.20¢ @ 2.30¢.

Sheets.—Light Sheets are in active demand, but thick Sheets are still somewhat neglected. Work has been pretty generally resumed at mills hereabouts, and prices are unchanged, and for the best makes about as follows:

Best Refined, Nos. 14 to 20.....2.40¢ @ 2.60¢
Best Refined, Nos. 21 to 24.....2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26.....3.10¢ @ 3.15¢
Best Refined, No. 27.....3.30¢ @ 3.40¢
Best Refined, No. 28.....3.40¢ @ 3.50¢
Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20 .....3¢ @ 3⅛¢
Best Soft Steel, Nos. 21 to 24.....3¼¢ @ 3⅜¢
Best Soft Steel, Nos. 25 to 26.....3⅜¢ @ 3½¢
Best Soft Steel, Nos. 27 to 28.....3¾¢ @ 4¢
Best Bloom Sheets, ¼¢ extra over the above prices.
Best Bloom, Galvanized, discount.... @ 70 %
Common, discount... ..... @ 72½ %

Old Material.—Market exceedingly dull, and prices all more or less nominal. So many mills are shut down that there is very little demand, and those who must sell have no alternative but to accept whatever bid they can get, as there is no such thing as a firm market price. General quotations about as follows: Iron Rails, $19 @ $20, delivered; Steel Rails, $15 @ $16, delivered; No. 1 Railroad Scrap, $17 @ $17.50, Philadelphia, or for deliveries at mills in the interior $17.50 @ $18, according to distance and quality; $12 @ $12.50 for No. 2 Light; $12.50 @ $13 for best Machinery Scrap; $13 @ $14 for Wrought Turnings; $9 @ $9.50 for Cast Borings, and nominally $21 @ $22 for Old Fish Plates, and $14.50 @ $15 for Old Car Wheels.

Wrought-Iron Pipe.—There is a very unsettled feeling in this department, and at the moment no such thing as uniform prices. Quotations are made on application, varying according to quantity, size of Pipe, time of delivery, &c. The strike in Pittsburgh is likely to have considerable influence on the Pipe trade, for which reason there are no open quotations, although manufacturers are disposed to deal liberally with their regular customers, prices named being according to circumstances.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, July 19, 1892.

The general situation shows no change since our report of last week. Matters at Homestead have quieted down since the arrival of the State troops and no further outbreaks by the strikers are expected as long as the soldiers continue on duty. There is no doubt whatever but that the determination of the Carnegie Steel Company, Limited, to operate the Homestead Steel Works in the future with non-union men will be carried out to the letter. The fact that the employees of the Upper and Lower Union Mills in Pittsburgh and the Beaver Falls Mills at Beaver Falls have gone out on strike in order to show their sympathy with the Homestead workmen will not have any effect whatever in so far as influencing the firm to recognize the Amalgamated Association at Homestead is concerned. On the other hand, it is the impression everywhere that the cause of the workmen at Homestead has been injured instead of benefited by this action of the men who have gone out. In addition to this, H. C. Frick, chairman of the Carnegie Steel Company, Limited, has announced that the Beaver Falls Mills will be operated with non-union men when operations have again been renewed, and the workmen now realize that when Mr. Frick says a thing he means it, and will carry it out. The same policy will doubtless be carried out when the Upper and Lower Union Mills have been started up. By permitting these men to go out on a strike after the scales for 1892-93 had been signed by the firm, the Amalgamated Association has put itself on record as a contract breaker and is no longer entitled to the confidence of the manufacturers, who formerly regarded it as an honorable body. Although there have been nearly a dozen meetings between the Conference Committees of the Amalgamated Association and the Pittsburgh manufacturers, but little progress has been made looking to a settlement of the wage question. A meeting was held in this city on Monday, the 18th inst., but nothing definite was accomplished. The general shut down of the mills has shut off the demand for all kinds of material, both raw and finished, and there is very little business being done. As we remarked last week, nearly all kinds of finished material have materially advanced in prices, and if the shut down continues further advances will undoubtedly take place.

Pig Iron.—Like the preceding one, last week was very quiet, and few sales of Iron took place. Furnacemen and dealers unite in saying that no change for the better can take place until there has been a general resumption in operations among the mills. When this occurs a good buying movement will undoubtedly set in, as stocks in the hands of consumers are known to be very light. Notwithstanding the few sales of Iron that are going, and the pressure of the furnaces to dispose of their product, Bessemer Pig continues to command $14, delivered. Furnaces, however, will agree to accept that price for deliveries running up to the close of the year. There have been a few sales of Foundry Iron, both Nos. 1 and 2, since our last report, but Gray Forge is dull and weak at prices named below. We repeat our quotations of last week, as follows:

Neutral Gray Forge	$12.50 @	$12.75,	cash
White and Mottled	12.25 @	12.50,	"
All-Ore Mill	12.50 @	12.75,	"
No. 1 Foundry	14.25 @	14.50,	"
No. 2 Foundry	13.25 @	13.50,	"
Bessemer Iron	14.00 @	.....	"
Cold-Blast Charcoal	23.50 @	24.00,	"

We note a sale of 1000 tons of Bessemer at $14, delivered at buyer's mill, equal deliveries, commencing with June and ending in September. Reports are going of a sale of 4000 tons of Bessemer to a Wheeling concern at a price equal to about $13.75, delivered at buyer's mill. The Iron is all to be delivered in August, and the sale was made by a speculator who sold short the above amount and expects to cover. For this reason the transaction can hardly be said to correctly reflect the present ruling price of Bessemer Iron. We also note a sale of 600 tons of No. 2 Foundry Iron at $13.35, delivered at buyer's mill.

Merchant Steel.—There is nothing new to report. Mills generally are refusing to take orders until a settlement of the wage scale has been effected. A few orders continue to be filled from stock, but these cut no very important figure in the market. We are advised that some very desirable orders are ready to be placed, and no doubt will be just as soon as labor troubles have been cleared up. Two large plants in this city which are operated with non-union men will continue in operation right along. At one of these plants a slight labor trouble cropped out last week, but it was promptly settled by the men returning to work at the terms proposed by the company. We repeat our quotations of last week, as follows: Crucible Spring Steel, 3.75¢ @ 4.25¢; Crucible Machinery Steel, 4.50¢ @ 5.50¢; Open-Hearth Spring, Tire and Machinery Steel from 2¢ to 2.40¢, according to grade. Tool Steel from 7¢ up, according to quality.

Wire Rods.—The inability to procure Steel and the shut down of a large number of Wire Nail mills has resulted in a complete stoppage of buying for the time being. As we announced last week, the Carnegie Steel Company, Limited, signed the scale for the Rod Mill department of their Beaver Falls Mills, but notwithstanding this action the men have gone out on strike in order to show their sympathy with the Homestead men. This action was ill

advised, and will result in the Beaver Falls Mills being made non-union. This fact has been stated by H. C. Frick, and it is well understood that when that gentleman outlines a policy it is carried out to the letter. In the absence of any sales on which to base quotations, we repeat prices given last week, which were $31.50 @ $32, f.o.b. at makers' mill.

Muck Bar.—The shut down of the mills has resulted in a scarcity of Muck Bar for prompt shipment, and as a result of this prices are showing a firmer tendency. We are advised of a small sale last week involving about 300 tons, which brought $24.70, delivered at buyer's mill. We quote at $24.50 @ $24.75 for the best grades, while inferior grades can be procured at a slight concession from the above prices.

Barb Wire.—Since our report of last week the plant of the Braddock Wire Company, at Braddock, Pa., has been closed down in all departments owing to the inability of the firm to secure Steel. In addition to this, the starting up of the new Barb Wire plant of the Pittsburgh Wire Company, also at Braddock, will probably be delayed, owing to the same cause. It is understood that the new Wire mill of the Pittsburgh Wire Company is ready for operations, and would probably have been started during the present week could a supply of Steel have been secured. In Pittsburgh at the present time there is but one factory in operation, that being the works of the Oliver & Roberts Wire Company. It is understood that the majority of orders have been cleared up, and while the shut down will, of course, stimulate prices to some extent, it is thought that buyers will not have much trouble in supplying their wants. We continue to quote Barb Wire at $2.25 @ $2.35 for Painted, while we advance quotations on Galvanized to $2.70 @ $2.75, f.o.b. at factory.

Wire and Cut Nails.—Since our report of last week, the Wire Nail factory of the Braddock Wire Company and the works of the Carnegie Steel Company, Limited, at Beaver Falls, have been closed down. The cause of the shut down of the Nail factory of the Braddock Wire Company was on account of inability to procure Steel Billets, while the factory of the Carnegie Steel Company, Limited, was closed down on account of the men going out on a strike in order to show their sympathy, as they claim, for the Homestead workmen. The retirement of these two concerns from the market at this time will not be seriously felt, as it is understood that both firms have pretty large stocks and will be able to fill orders for some little time yet. We continue to quote Wire Nails at $1.60 @ $1.70 in carload lots and $1.70 @ $1.80 in less quantities. In the Cut Nail situation there is nothing new to report. Nearly all the mills are closed down making repairs, and will probably remain in that condition for some time. The demand for Cut Nails at the present time is very small, and little trouble is experienced in filling what orders are going from stocks on hand. The Brown, Bonnell Iron Company of Youngstown, Ohio, have retired from the Cut Nail business, and are offering their Nail machines for sale. We repeat our quotations of last week, being $1.50 @ $1.55 in carload lots, f.o.b. at factory in Wheeling District.

Ferromanganese.—We are advised of a sale of about 250 tons of foreign, delivered at Wheeling, at a price said to be less than $60 per ton. There is only a small demand for domestic, and the few sales going are at prices ranging from $61 to $62, delivered at buyer's mill.

Soft-Steel Billets.—As yet none of the Bessemer steel plants have signed the Amalgamated scale, and Billets for prompt delivery continue very scarce. In Pittsburgh the plant of the Hainsworth Steel Company is running, but this firm are sold up for some time to come. The Allegheny Bessemer Steel Company plant at Duquesne is also in operation. This plant is owned and operated by the Carnegie Steel Company, Limited, and already there is talk of the men employed there going out on strike in order to show their sympathy for the Homestead workmen. Billets for prompt delivery have shown increased strength during the week. We note a sale of 700 tons for spot delivery which brought $24 at mill, and also a sale of 1000 tons for delivery in August at $24, delivered at buyer's mill, the freight from the mill to point of delivery being 40 cents. As near as we can learn, no contracts for delivery late in the year are being made, and it is not expected that any will be made until the labor troubles have been arranged.

Structural Material.—As we remarked last week, the shut down of the mills has practically taken Pittsburgh out of the market for the time being. The desperate efforts made to put the Homestead Steel Works in operation, however, will undoubtedly result in the Carnegie Steel Company, Limited, being in the market again before very long. Whatever business is doing is in the nature of old contracts, booked some time before the shut down occurred. Notwithstanding that Structural Shapes in other localities have advanced very materially in price, we continue to repeat quotations of last week, which are as follows: Beams and Channels on a basis of 1.90¢ @ 1.95¢ for desirable orders and 2¢ @ 2.05¢ for small lots; Angles we quote at 1.80¢ @ 1.90¢; Universal Mill Plates, Steel, 1.80¢ @ 1.90¢; Universal Mill Plates, Iron, 1.75¢ @ 1.80¢; Tees, 2.35¢; Refined Iron Bars, 1.70¢ @ 1.75¢; Steel Bars, 1.70¢ @ 1.75¢; Sheared Bridge Plates, 1.95¢ @ 2.05¢.

Steel Plates.—The remarks made in regard to Structural Shapes apply equally well to Steel Plates. While stocks are much larger than in Structural Shapes, Pittsburgh is practically a non-seller, and will be until operations have been resumed in the various plants which are now closed. A few orders continue to be filled, but these are all booked subject to stock. In the absence of any large sales on which to base quotations, we repeat prices quoted last week, as follows: Flange, 2¢ @ 2.10¢; Fire Box, 3.50¢ @ 3.75¢; Shell, 2¢ @ 2.10¢; Tank, 1.75¢ @ 1.85¢, f.o.b. Pittsburgh.

Steel Rails.—Notwithstanding the attempts of the Homestead strikers to induce the men at the Edgar Thomson Steel Works to go out on strike, that plant continues in operation, and it is not expected there will be any trouble with the men employed there. The daily output of Rails at the Edgar Thomson plant is about 1500 tons and these are being shipped about as fast as made. In a talk with a maker the other day we were advised that nearly the entire bulk of business booked this year was for old roads that were extending their equipment and making repairs. A good many thousand tons of Rails have been used by the Pittsburgh, Fort Wayne & Chicago Railroad in double tracking their road from Pittsburgh to Chicago in anticipation of heavy traffic next year on account of the World's Fair. Prices are unchanged, and we repeat our quotations of $30, f.o.b. at mill, for standard sections.

Skelp Iron.—This article continues very scarce, and firms who are able to fill orders are receiving the advantage of a considerable advance in price. The order of 7000 tons, referred to in our last issue, has not yet been placed, and in all probability Soft Steel will be substituted in place of Skelp Iron. We repeat our quotations of last week, being 1.70¢ @ 1.75¢ for Grooved and 1.85¢ @ 1.90¢ for Sheared, four months, or 2 % off for cash.

Manufactured Iron.—Another conference was held yesterday between the Amalgamated Association and the Pittsburgh manufacturers, but nothing of a definite nature was accomplished. It is a remarkable thing that in the face of about a dozen conferences held within the last two or three weeks, statements continue to be given out that nothing is being done. While conferences between manufacturers and workmen when there is a dispute are always desired, it would seem that, from the large number of conferences held, some action looking to a settlement of the present labor dispute should be taken. In conversation with a prominent official of the Amalgamated Association, we are advised that the best of feeling prevails between the Pittsburgh manufacturers and the Amalgamated Association, and that while little progress has been made looking to a settlement of the differences now existing, there is still hope that a wage scale for 1892-93 will be agreed upon without a strike. As we noted last week, the memorandum of agreement which accompanies the iron scale has practically been decided upon, with the exception of one paragraph. This can hardly be termed making progress, however, as we understand that a few changes were made from the original memorandum of agreement as proposed by the Amalgamated Association. Another conference will be held to-day (Tuesday), at 2 p.m., in the Ferguson Building in this city. A number of the leading Bar Iron manufacturers of this city stated that they are able to fill a few orders from stock, but that if the shut down continues for a week or two longer they will be compelled to refuse business entirely. The recently sharp advances in the price of No. 1 Bars are being firmly maintained, and owing to the great scarcity of material further advances are very probable. We quote No 1 City Bars at 1.70¢ @ 1 80¢, while Bars from Old Rails and Scrap are ranging from 1.60¢ to 1 70¢; No. 24 Sheet we quote at 2.65¢ @ 2.75¢, all 60 days, 2 % off for cash.

Wrought Iron Pipe.—As we announced in our issue of last week, the National Tube Works Company have let a contract for the erection of a Bessemer plant, and in a few months from now will be in the market with Steel Pipes and Tubes. The great scarcity of Skelp Iron is causing the Pipe and Tube makers no little inconvenience, and the higher prices ruling for Skelp have affected the price of Pipes and Tubes to some extent. While the official discounts of the association continue to be shaded very liberally, makers claim that they are receiving better prices on some lines at the present time than they were early in the month.

Scrap Iron and Steel.—There is nothing new to report and business as far as old material is concerned is at a standstill. In the absence of sales on which to base quotations, we repeat prices given last week, as follows: No. 1 Railroad Wrought Scrap, $13.50 @ $14 ℔ net ton; Cast Scrap, $10 @ $10.50 ℔ gross ton; Billet and Bloom Ends, $15 @ $15.50; Cast-Iron Borings, $6.50 @ $7 ℔ gross ton; Mixed Country Steel, $12 ℔ gross ton; Railroad Coil Springs, $17 @ $17.50 ℔ gross ton; Leaf Springs, $19 @ $19.50; Old Steel Axles, $19 @ $20; Machinery Cast Scrap, $11 @ $11.50 ℔ gross ton. Dealers in Scrap material state that they do not look for any improvement in the market until a general resumption of operations in the idle mills has taken place. It is believed that stocks at mills are very low, and when operations have been resumed a general buying movement is expected to set in. This will probably favorably affect prices.

which are lower now than ever known in the history of the trade.

Old Rails.—We are not advised of a single transaction in Old Rails since our report of last week. Offers made by sellers at unheard of prices have not been accepted and mills are refusing to buy at any price. They simply state that they cannot use the material and do not care to store it. We repeat nominal quotations of last week, as follows: Old Steel Rails which do not require sorting, $15.75 @ $16; miscellaneous lengths we quote at $15 @ $15 25 and long lengths at $15.50 @ $15.75.

Cleveland.

CLEVELAND, OHIO, July 18, 1892

Iron Ore.—Sales of small amounts of both Bessemer and non-Bessemer Ores have occurred during the past week. The shading of prices over those prevailing for the same grade of Ore in the corresponding week of 1891 averaged about 25¢ ℔ ton, although in some instances it amounted to 35¢ and 40¢. There have been quite a number of inquiries for non-Bessemer Ore, but they were not very emphatic and buyers are making no great efforts to buy unless they obtain liberal concessions. Down in the Ore selling district little can be heard except the energetic controversy continually going on over vessel rates from the mines to Lake Erie ports. A change of 5¢ ℔ ton in the carrying rate from Ashland or Escanaba is hailed as a great victory by the buyer or seller, according to whom is benefited. The Escanaba rate is still 70¢ and the Ashland rate remains at $1 10, which is probably about as cheap as Ore can be brought down without an actual loss to the vessel owners. The receipts of new Ore at all lower lake ports during the past week were heavy. About 80,000 tons were unloaded at Cleveland, while at Ashtabula, Fairport and other harbors the receipts aggregated 150,000 or 160,000 tons more. Shipments to furnaces in the valley also continue heavy, One of the largest Ore dealing firms estimated to-day for *The Iron Age* that the total amount of Ore sold to date, including the early sales to the Illinois Steel Company and other concerns, would reach 4,250,000 tons. Another firm placed the amount 250,000 tons less. All dealers unite in the prophesy that a very large amount of Ore will be sold in plenty of time to insure its delivery before the close of navigation. Even a small improvement in the Pig Iron market would probably start a buying movement that would be the means of placing 1,500,000 or 2,000,000 tons of Ore within a very few days.

Pig Iron.—The market continues as lifeless and inactive as ever and is only occasionally stirred up by rumors of inquiries as to prices for small amounts of Iron. There have been no changes in prices. They could not well go lower and there is little in the present situation to induce them to go higher The volume of business is consequently very light and nominal quotations are as follows:

Nos. 1 to 6 Lake Superior Charcoal	$17.50 @ $18 05
Nos. 1, 2 and 3 Bessemer, per ton.	15.00 @ 15.20
No. 1 Strong Foundry, per ton..	15.00 @ 15 50
No. 2 Strong Foundry, per ton..	14.00 @ 14.50
No. 1 American Scotch, per ton.	..... @ 15.60
No. 2 American Scotch per ton .	..... @ 14.60
No. 1 Soft Silvery, per ton.....	15.50 @ 16 50
Mahoning and Shenango Valley Neutral Mill Irons, per ton....	13.50 @ 14 00
Mahoning and Shenango Valley Red Short Mills, per ton.....	14.00 @ 14.50

Old Rails.—There is very little demand for Old Americans even at $19 @ $19.50 ℔ ton. The offerings are plenty.

Nails.—The market is firm and prices are steady at $1.75 ℔ keg for Steel Wire and $1.65 for Steel Cut Nails in stock.

Manufactured Iron.—Some demand for Common Bar at 1.60¢ is reported.

Scrap.—The market is dull and there is little, if any, demand. No change in quotations.

Barb Wire.—Dealers report a brisk demand at unchanged quotations.

St. Louis.

Office of *The Iron Age*,
Bank of Commerce Building,
ST. LOUIS, July 18, 1892.

Pig Iron.—A review of the market does not indicate any practical change either as regard prices or the volume of trade. Small orders are the rule, and it is extremely difficult to get consumers into a buying mood. The impression is general that prices have now reached bottom, but as this same feeling was prevalent some three months since with surrounding conditions of a far more favorable character than at the present time, it is difficult for buyers to conclude that prices have seen the lowest point they are likely to reach. If the demand would improve even slightly, no doubt the movement would be reflected in prices, but the improvement does not materialize. Consumers are apathetic regarding the future, and seem perfectly satisfied to wait and take the chance of an advancing market. The labor troubles have still further induced them to hold off placing orders, and it is difficult to see when the turn will come. Sales, as stated above, are light, and prices are weak and inclined to go lower. For ordinary quantities we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$13 75 @ $14 00
Southern Coke, No. 2 Foundry,	13 00 @ 3. 0
Southern Coke, No. 3 Foundry,	12 2 @ 12 75
Gray Forge.....	12 00 @ 12 2›
Southern Charcoal, No. 1 Foundry.....	15.25 @ 15.75
Southern Charcoal, No. 2 Foundry.....	14 75 @ 15 00
Missouri Charcoal, No. 1 Foundry.....	14.00 @ 14.50
Missouri Charcoal, No. 2 Foundry.....	13 50 @ 14.00
Ohio Softeners.....	16 75 @ 17.00

Bar Iron.—This department has undergone a startling change during the past two weeks. Previous to that time mills were out begging orders which consumers were loth to give. Now the conditions are reversed and consumers are sending in their specifications, and are less disposed to haggle on the question of price than formerly. Jobbers are doing a large trade at 1.90¢ from store, at which price they are quite firm. Mills quote 1.65¢, half extras, f.o.b. cars East St. Louis.

Barb Wire.—There is some slight improvement in the demand noticeable in this department. The labor troubles in the East are causing the mills some uneasiness, and should the settlement be long deferred they will have some difficulty in obtaining supplies of raw material. Parices are firm, and, in consideration of the conditions as noted above, it would not be surprising to see them advance. Mills quote as follows: Painted, $2 30; Galvanized, $2 75. Less than car lots 10¢ ℔ cwt. additional. Terms 60 days, or 2 % discount for cash.

Wire Nails.—With the general shut down of mills for repairs a better feeling is noticeable. Jobbers report an increased demand and it is doubtful if any mill would quote less than $1.75. At this price they are firm, and, as stated last week, some are asking $1.80. The outlook is encouraging, and unless something unforeseen occurs, a higher range of values will no doubt be in order within the next 30 days.

(*By Telegraph.*)

Pig Lead.—The market is quiet and offerings are free at 4¢. A sale of 600 tons was consummated at that price today. The feeling is feverish, however, and the tendency is toward lower prices, which may prevail before the week is out. Bids of 3.97½¢ do not result in any business.

Spelter.—This metal is salable at 4.52½¢, with bids of 4.50¢. At the latter price, however, sales are not made. The market is is such condition that it is evidently only question of a few days when sales will be recorded at that price. The demand is slow and the market has the appearance of being top heavy.

George W. Gray, resident manager for Chamberlain, Turney & Baird, has resigned. His successor has not as yet been appointed.

Cincinnati.

(*By Telegraph.*)

Office of *The Iron Age*, Fourth and Main Sts.,
CINCINNATI, July 20, 1892.

There has been a more liberal volume of business in Pig Iron the past week, but it was accomplished by rushing of lower prices the decline on Southern Coke Iron being about 25¢ ℔ ton. Some of this business was done during the closing days of the preceding week, but dealers were not ready to report it a week ago and perhaps would not be now if it had not leaked out. The business now reported, therefore, covers about ten days and is in the aggregate about 35,000 tons. Gray Forge has sold as low as $8 50 ℔ ton, f.o.b. Birmingham; No. 2 Foundry, $9.50, and other kinds of Southern Coke Iron at proportionate prices. These are said to be spot cash and for prompt shipment, but it is now offered at these prices for the remainder of the year. There are rumors of sales in which these prices have been shaded, but they are not well authenticated. It is noteworthy that some of this Iron was sold by the leading standard Iron companies, and while it was not all at Birmingham, that was made the basis of value. There was considerable Charcoal Iron included in the total, but no large quantities, and pretty full prices were obtained for it. The current consumptive purchases have been larger than usual in the aggregate, the orders being more numerous and in some cases larger. Quotations are as follows:

Foundry.

Southern Coke, No. 1.....	$13 25 @ $13.50
Southern Coke, No. 2..... ..	12 25 @ 12 50
Southern Coke, No. 3...	11.25 @ 11 50
Ohio Soft Stone Coal, No. 1.....	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley...	16 60 @ 17.25
Hanging Rock Charcoal, No. 1....	19.75 @ 2 .00
Hanging Rock Charcoal, No. 2....	19.00 @ 19.50
Tennessee and Alabama Charcoal, No. 1...	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2.....	15.50 @ 16.00

Forge.

Gray Forge	11 25 @ 11.75
Mottled Neutral Coke.....	10.75 @ 11.25

Car Wheel and Malleable Irons.

Standard Southern Car Wheel. ...	18.75 @ 19.00
Lake Superior Car Wheel and Malleable.....	17.75 @ 18.00

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., under date of July 18, 1892, writes: The past week has shown a featureless market here, the local transactions having amounted to little beyond the regular carload and small trade. There has been the same continued lack of general inquiry for Lake Superior Charcoal Iron, although there are one or two large buyers at present figuring, and it will be interesting to see whether they will be able to obtain any concessions under prices which have

been quoted for so long a period. It is pleasant to note the confidence of our local community in the consolidation of the Michigan-Peninsular Car companies, as the preferred stock, a million being reserved for subscription in Detroit, was largely over subscribed in the first 24 hours. Finished Material is in quite active demand, and one or two good sized contracts for Axles and Car Iron have been placed. With a generally quiet market we quote prices as follows:

Lake Superior Charcoal, all numbers	$16.50 @ $17.50
Lake Superior Coke, Bessemer	16.00 @ 16.50
Lake Superior Coke Foundry, all ore	16.00 @ 17.00
Standard Ohio Blackband (40 per cent.)	16.50 @ 17.00
Southern No. 1	15.00 @ 15.50
Southern Gray Forge	13.25 @ 13.50
Jackson County (Ohio) Silvery	17.75 @ 18.25

Louisville.

LOUISVILLE, KY., July 18, 1892.

There has been no special change in prices and sales have not been large. While consumers consider the present values of Iron extremely low, yet owing to the disturbed condition of trade arising from trouble with employees, they are not disposed to buy freely. For long deliveries prices are held fairly firm, but for prompt shipment a few furnaces are making inside quotations. There are more or less rumors concerning cheap lots of Iron, but in most cases these arise from the ideas of buyers as to what they might do if offers were made rather than from actual offerings.

The condition of the crops is such as to assure a very heavy yield and at prices that are remunerative, and it is felt that their influence will be of much advantage, will steady the market, and in time have a strong influence toward increase in value.

A number of the rolling mills in the West are shut down owing to trouble with employees, and this has caused them to ask furnaces to hold back shipments of Iron, and has taken quite an important buying factor from the market.

We quote for cash, f.o.b. cars, Louisville:

Southern Coke, No. 1 Foundry	$13.50 @ $14.00
Southern Coke, No. 2 Foundry	12.50 @ 13.00
Southern Coke, No. 3 Foundry	12.00 @ 12.50
Southern Coke, Gray Forge	11.25 @ 11.75
Southern Charcoal, No. 1 Foundry	15.75 @ 16.75
Southern Car Wheel, standard brands	18.00 @ 19.00

New York.

Office of *The Iron Age*, 96-102 Reade street,
NEW YORK, July 20, 1892.

Pig Iron.—This market is quiet, although some movement has been induced by the lowering of prices. Round blocks have been sold in Eastern territory by a leading Alabama company who have thus far kept out of the market. During the past week this concern placed East and West about 20,000 tons. Virginia Irons are still being offered at low figures. Thus No. 2 Foundry has been offered at $10 at furnace, with a $2.85 freight rate guaranteed. We quote Northern brands at $15 @ $15.50 for No. 1; $14 @ $14.50 for No. 2; $13.50 @ $13.75 for Gray Forge, tidewater. Southern Iron, same delivery, $14.25 @ $15 for No. 1; $13.50 @ $14.50 for No. 2 and No. 1 Soft; $13 @ $13.50 for No. 2 Soft; $12.50 @ $13 for Gray Forge.

Ferromanganese and Spiegel.—The last large sale of foreign Ferro was a 500-ton lot of Mostyn to an Eastern Steel works at private terms, our quotation remaining $59 at tidewater. Negotiations are in progress for a sale of 500 tons 10 to 12 % German Speigel, delivery balance of the year, to an Eastern Rail mill.

Billets and Rods.—Inquiries in this market for Soft Billets and Rods are not numerous or pressing, the only sale of consequence recorded being a lot of 1000 tons of special Billets. Pending negotiations, quotations are advanced from £5. 7/ to £5. 11/ on a lot of German Rods. Domestic are quiet at $34 @ $34.50, tidewater. We quote a sale at private terms of 3000 tons of Blooms, with option to take a like quantity, by an Eastern Rail mill to a Pennsylvania works.

Steel Rails.—The sale of 2000 tons of 100 lb Rails by the Pennsylvania Steel Company to the Pennsylvania Railroad is significant chiefly as showing the tendency toward heavier sections. We understand that the order is experimental, to test the value of heavy Rails on curves and points where there is heavy traffic. An Eastern mill has had diverted to it an order for 10,000 tons for a Western railroad. We continue to quote $30 at mill for standard sections.

Manufactured Iron and Steel.—There has been some canceling of orders for Beams from idle mills, and some purchases for delivery to customers have been made in the open market. A similar experience has been had in Plates, and in such cases a sharp advance has been obtained over the original contract price. Quite a good deal of additional work has thus been thrown upon Eastern mills from their new territory, and the market is in a mixed condition, prices varying within quite a large range, according to the circumstances attending each particular case. It takes a good deal of vigorous shopping to get anywhere near old prices on new work for early delivery and in the majority of cases an advance must be accorded. There are indications, too, that buyers are reaching the conclusion that even for more distant delivery it is wise to enter orders now, so that the tone is stronger throughout. We quote: Beams, 2.25¢ @ 2.65¢ for small lots and 2.20¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.85¢ @ 2¢; Sheared Plates, 1.9¢ @ 2.25¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.85¢ @ 1.9¢ for Tank; 2.20¢ @ 2.25¢ for Shell; 2.50¢ @ 2.65¢ for Flange; 2.6¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock; Refined Bars are 1.7¢ @ 1.9¢, on dock; Common, 1.6¢ @ 1.65¢. Scrap Axles are quotable at 2¢ @ 2.10¢, delivered. Steel Axles, 2¢ @ 2.1¢, and Links and Pins, 2.05¢ @ 2.20¢; Steel Hoops, 1.90¢ @ 2¢; Cotton Ties, 85¢ ℔ bundle, delivered.

Merchant Steel.—We quote Machinery, 1.80¢ @ 1.85¢; Tire, 1.85¢ @ 2¢; Toe Calk, 2.20¢ @ 2.30¢, and Sleigh Shoe, 1.75¢ @ 1.80¢, delivered.

Track Material.—We quote Spikes, 1.90¢ @ 2¢; Fish Plates, 1.60¢ @ 1.65¢; Track Bolts, square nuts, 2.50¢ @ 2.60¢, and hexagon nuts, 2.70¢ @ 2.80¢, delivered.

Metal Market.

Copper.—Several fair-sized lots of Lake Superior Ingot have been secured from second hands at 11¼¢ @ 11⅜¢. The exact quantity is not stated, but it is understood that at least 250,000 lb were involved. Since this movement took place the offering from outside sources has moderated somewhat, and for the moment 11⅜¢ would appear to be an inside rate. At first hands there has been little doing. In any event no reports of important deals have come to the surface, and according to general report consumers are very indifferent about ordering ahead to any considerable extent. Casting brands are quoted at 10¾¢, and that price appears to be the lowest on ordinary quantities for the time being. Regarding action at recent meetings of producers in Europe no facts of particular significance have been divulged, and neither London nor the local market movements bear trace of any radical change in the general situation. At the close on Wednesday no Lake Ingot was offered at less than 11¼¢. Two sales of 25,000 lb each were recorded at 11.45¢ @ 11¼¢ on the Metal Exchange. It is significant in this connection that London cables quoted an advance there on Merchant Bars.

Pig Tin.—Speculative interest was lively during the early part of the week under review and prices hardened to 21¢, cash, for prompt and current month delivery. The improvement, however, proved to have been short lived, and subsequent movement suggests that the rise was engineered by the clique to facilitate sales. Whatever the facts in that connection there has been no support since, and prices have merely followed in line with London fluctuations, reacting to the extent of ¼¢ ℔ lb. Straits shipments during the first half of July, according to the Metal Exchange cables, were 1000 tons to Great Britain and America and 50 tons to the Continent, which, together with the June shipments, assure a full supply for some time to come. Along with spot stocks, the shipments make a rather weak statistical position. On final dealings Wednesday, Straits went at 20.60¢ @ 20.65¢, net cash, and at the latter price additional parcels were offered.

Pig Lead.—The pressure to sell that was manifested last week by some speculative holders and a few producers have become more pronounced, and the weight of the offering has forced prices down to 4.10¢. At that rate about 500 tons have been taken by consumers, but that quantity seemed to have been all that they cared to take and the market therefore closed flat at 4.10¢ asked, with demand extremely tame.

Spelter.—Demand from all sources has been slow throughout the week, and transactions involving more than single carload lots have been extremely few in this market. There is some inquiry for Western brands for July and August shipment, at 4.70¢ delivered, but sellers stand out for 4¼¢ and report some sales at that rate. On shipments further ahead consumers manifest no disposition to negotiate at a lower level of cost.

Antimony.—Aside from ordinary purchases for immediate consumption there is little movement, and prices still tend more or less in buyers' favor. Prices are easy at about 14¢ @ 14½¢ for Cooksons and 10¾¢ @ 11¢ for Halletts.

Tin Plate.—Some lines of Coke finish Plates have been offered for future shipment at slightly lower prices, but the concessions proved to be unattractive. For spot goods the demand has continued slow, with individual purchases invariably small and slight concessions the rule, except on large size Ternes, which are yet rather scarce: We quote as follows for full weights: Coke Tins—Penlan grade, IC, 14 x 20, $5.25; J. B. grade, do., $5.37½; Bessemer do., $5.25; light weights, 100-lb, 10¢ less; 95-lb, 20¢ less; 90-lb, 30¢ less than full weight; Siemens Steel, $5.37½. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75 @ $5.80; IX basis, $6.80. IC Charcoals—Melyn grade, IX, $6.40; for each additional X add $1.50; Allaway grade, $5.75; Grange grade, $5.85; for each additional X add $1.20. Charcoal Ternes—Worcester, 14 x 20, $5.75; do., 20 x 28, $11.50; M. F., 14 x 20, scarce; do., 20 x 28, scarce; Dean, 14 x 20, $5.45; do., 20 x 28, $10.80; D. R. D. grade, 14 x 20, $5.35; do., 20 x 28, $10.40 @ $10.45; Mansel, 14 x 20, $5.30; do., 20 x 28, $10.45; Alyn, 14 x 20, $5.45; do., 20 x

28, $10.65; Dyffryn, 14 x 20, $5.65; do., 20 x 28, $11. Wasters—S. T. P. grade, 14 x 20, scarce; do., 20 x 28, $10; Abercarne grade, 14 x 20, scarce; do., 20 x 28, $9.80.

Coal Market.

The Anthracite Coal trade fails to respond to the repeated prods of the combine, who seek to open up the market by advancing the schedule of prices. Despite all efforts in this direction the market is dull, as it always is in the month of July. No sales of Coal are taking place at the latest advance, buyers being apprehensive of a breakdown that may leave them stranded. Nevertheless, it is known that at a meeting of operators on the 21st a further advance will be proposed and perhaps forced through. This plan is far from meeting with general approval, some of those longest in the business reasoning that the tendency will be to crowd out only those who have the yard space and the capital to buy at spring prices, all late comers being placed at a disadvantage. And as the new policy becomes more fully developed this feature is liable to become more pronounced. Independent dealers are quoted about as follows, f.o.b.: Chestnut, $3.90 @ $4.10; Stove, $4.15 @ $4.25. Therefore, June prices most nearly indicate the actual state of the market.

The official statement is as follows:

Region.	July 9, 1892. Tons.	July 11, 1891. Tons.	Diff. Tons.
Wyoming.....	424,690	450,542	25,852
Lehigh.....	123,916	123,978	52
Schuylkill.....	205,513	262,972	57,459
Total.....	754,119	837,492	83,373
Total for year to date. ...	20,392,357	19,211,729	Inc. 1,180,628

For June the shipments were 3,827,924 tons, an increase of 47,682 tons.

The Pottsville *Journal*, 15th inst., says: "The colleries all worked four days and produced about at a two-third rate. The short time worked adds materially to the cost of production and is unsatisfactory to the workingmen, as well as the operators."

The Shippen and Wetherill tract of Coal land, west of the Philadelphia & Reading Railroad, near Brockville, was bought up this week by Benjamin S. Lyman of Philadelphia, and contractors have a large force of men at work sinking test pits to ascertain the most advantageous location to begin operations. When the colliery is in full operation the Coal shipments will aggregate 1000 tons per day.

There is some talk about an advance of railroad tolls to tidewater and it is announced that the movement to organize a combination among the Bitiuminous Coal roads of Ohio and neighboring States is approaching a successful consummation, the Hocking Valley taking the initiative. The Hocking Valley region produced last year in round numbers 2,500,000 tons of Coal. The product this year will be nearly 3,000,000 tons. Its markets comprise points reached from lake ports.

Imports.

Hardware, Machinery, &c.

Aich, H., Ironware, cs., 4
Am. News Company, Hdw., cs., 3
Baldwin Bros. & Co., Gun Barrels, cs., 17
Barbour Bros., Mach'y, bxs., 6
Boker, Hermann & Co., Guns, cs., 75; Hardware, cs., 9; Anvils, 144
Belknap, W. B. & Co., Cutlery, cs., 2
Botany Worsted Mills, Mach'y, pgs., 33
Bing, Ferd. & Co., Hdw., cs., 7
Blumenthal & Bros., Hdw., cs., 5
Curley, J. & Bro., Hardware, cs., 2
Fuchs & Lang, Mach'y, pgs., 11
Folsom Arms Co., Guns, cs., 13
Field, Alfred & Co., Ironware, ck., 1
Hartley & Graham, Guns, cs., 23
Hammacher, Schlemmer & Co., Nuts, cs., 78
Judd, H. L. & Co., Hardware, csc., 1
McCoy, J. F. & Co., Chains and Ironware, bbls., 15
Murphy, Alex. & Co., Iron Buckles, cs., 8
Miller, Julius, Machinery, cs., 8
Plepke Filter Company, Mach'y, cs., 7
Strauss, A., Hardware, cs., 6
Slayton, E. & Co., Ironware, cs., 3
Vom Cleff & Co., Chains, cks., 25
Vought & Williams, Anvils, 68
Ward, Jas. E. & Co., Machinery, pcs., 24
Werlemann, H., Arms, cs., 37
Wiebusch & Hilger, Guns, cs., 28; Chains, cks., 25

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, July 20, 1892.

Prices for Pig Iron Warrants have remained almost stationary at 41/3 @ 41/4 for Scotch, 40/ @ 40/3 for Cleveland and 49/6 for Hematite. Operations have been moderate and traders hold aloof, although consumptive demand for some kinds of Iron is rather better. The elections and the Glasgow Fair have interfered with business to some extent. Stocks in public stores show a further slight decrease, being at present about 419,000 tons Scotch and 31,000 tons Cleveland.

Pig Tin market improved during the week after small holders had liquidated and responded to better advices from America, but buyers have latterly become scare and prices again receded. Straits shipments during the past fortnight reported as being 1225 tons and spot stock 1697 tons, the bulk of which is in strong hands.

The Copper market has been quiet, but, after a further slight decline early in the week, became quite steady. Some firmness developed on rumors of purchases for the account of American operators, but that was offset subsequently by the unfavorable statistical exhibit for the last fortnight, showing increase in stocks of 2270 tons. Chili charters were 1200 tons. Demand for consumption is at present rather quiet. Sales of furnace material during the first half of the month included 1600 tons Anaconda Matte, Argentiferous, forward delivery, terms not transpired. Visible supply of Copper in Europe increased 2083 tons during the fortnight.

The Tin Plate market is without encouraging feature. If anything, the undertone shows more weakness, and advantage is certainly with buyers. The attendance at the Birmingham quarterly meeting, small and the transactions were at easier prices.

Steel Ship Plates are somewhat firmer. Makers now generally quoting £6. 2/6 f.o.b.

Scotch Pig Iron.—Business in makers' Iron moderate and at barely steady prices:

No. 1 Coltness,	f.o.b.	Glasgow.....	52/6
No. 1 Summerlee,	"	"	51/6
No. 1 Gartsherrie,	"	"	50/6
No. 1 Langloan,	"	"	50/6
No. 1 Carnbroe,	"	"	43.6
No. 1 Shotts	"	at Leith.....	51/
No. 1 Glengarnock,	"	Ardrossan.....	50/
No. 1 Dalmellington,	"	"	46/6
No. 1 Eglinton,	"	"	46/

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

Cleveland Pig.—There has been rather more doing, at slightly easier prices, with the market closing at 40/ for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Dealings still moderate and makers' price remains at about 50/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen.—A quiet market, with former prices asked. English 20 % quoted at 77/6, f.o.b. shipping port.

Steel Rails.—No change in condition of market. Demand still moderate. Heavy sections quoted at £4. 2/6, f.o.b. shipping port.

Steel Billets.—Former prices are asked, but market continues slow. Bessemer, 2¼ x 2¼ inches, quoted at £4. 5/, f.o.b. shipping point.

Steel Blooms.—Market very quiet and without change. Makers quote £4 for 7 x 7, f.o.b. shipping point.

Steel Slabs.—Small sales making at about former prices. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

Old Iron Rails.—The demand is slow and prices are barely steady. Tees quoted at £2. 17/6 and Double Heads at £3, f.o.b.

Scrap Iron.—There is somewhat freer offering and the market is weaker. Heavy Wrought Iron quoted at £2. 7/6 @ £2. 10/, f.o.b.

Crop Ends.—Very little doing and prices quite nominal. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

Manufactured Iron.—No change in character of business, and prices still rather easy. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ordinary Marked Bars	8	10	0	@	.....		
" Common "	6	5	0	@	6	7	6
Staff. Bl'k Sheet, singles....	7	5	0	@	.....		
Welsh Bars (f.o.b. Wales)....	5	10	0	@	.....		

Tin Plate.—Little business doing and the market rather weak. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade 14/	@ 14/6
IC Bessemer Steel, Coke finish.....	@ 12/6
IC Siemens " " "	@ 12/9
IC Coke, B. V. grade 14 x 20.....12/3	@ 12/6
Charcoal Terne, Dean grade.... .....11/9	@ 12/

Pig Tin.—The market closes steady, but quiet at £95. 15/ for spot, and £95. 10/ for three months' futures.

Copper.—Market quite firm at the close. Merchant Bars quoted at £45, spot, and £45. 7/6, three months' futures. Best selected, £48. 10/.

Lead.—Demand moderate, but the market steady at £10. 10/ for Soft Spanish.

Spelter.—Only moderate demand, but the market steadier at £21. 12/6 for ordinary Silesian.

The Chicago, Burlington & Quincy Railroad Company have created an industrial department at Chicago, in charge of George Ross, to furnish information to Eastern manufacturers regarding eligible Western manufacturing sites and to locate such factory interests along the line of the "Q" road in the vicinity of Chicago.

Building improvements in Philadelphia since the beginning of the year involve a cost of about $10,000,000, which is an increase of $2,000,000 over the corresponding six months in 1891.

HARDWARE.

Condition of Trade.

NOTWITHSTANDING the midsummer dullness there is some movement of business. Retailers are to some extent sending in orders to replenish stocks, but a more important feature of trade is the placing of orders by the jobbers for next season's goods, the volume of purchases thus far being fair. There is, however, a feeling that fall business is likely to be good and merchants are making their arrangements to secure the necessary stocks at as favorable figures as they can obtain. Manufacturers, especially in heavy goods, are pursuing a very careful and conservative course so as to avoid being overloaded with orders in the execution of which there may be difficulty owing to the effects of labor agitations. In the leading lines which lie near the raw material they are refusing in many cases to accept orders for future delivery or in excess of their ability to execute. While there is thus far little or no change in quotations, the effect of this condition of things is to give the market a stronger undertone. For the situation in the different centers we would refer to the special reports which follow.

Chicago.

(*By Telegraph.*)

All jobbing houses report a surprising midsummer trade. Orders are numerous and call for a wide assortment of goods. The poor outlook for crops last spring caused merchants to purchase conservatively, but now that a radical change has taken place and farmers are likely to have another prosperous season, there is a feeling of confidence in the future which has led to the general renewal of Hardware stocks. House-Furnishing Goods feel the impetus as well as straight Hardware. The Heavy Hardware jobbers are also very busy and are shipping out unusually large quantities of iron and steel. Roofing tin is active, and some grades are now in very short supply. American brands are in excellent demand, but complaint is made that very high prices are asked by those who are ready to fill orders, while those who quote regular trade prices are not in position to make prompt shipments.

St. Louis.

(*By Telegraph.*)

Jobbers report a fairly satisfactory trade for this season. The extreme rains which have flooded the West for the past 30 days have subsided and the demand from the sections visited by these incessant rains is quite large. Shelf Hardware is ordered freely and in some locations large stocks of Heavy Hardware are being ordered. Barb Wire is active and also Wire Nails. Builders' Tools and Implements and seasonable articles complete the list of goods mostly in demand. The crop outlook is splendid and a large fall trade is confidently anticipated.

Boston.

BIGELOW & DOWSE.—July is a month for vacations, and the employees left at home are kept very busy, notwithstanding a large falling off in the volume of business. August will usually show a gain over July, but the regular fall trade will not assume any large proportions before September. The spring trade has been very satisfactory, both as regards volume and profit. The outlook for a good fall trade is favorable, unless the labor troubles in the West extend to the East, but at present the laborers in New England are fully employed. As an instance, the White Mountain Freezer Company are running 15 hours a day, and are making an Ice-Cream Freezer, including the tub, every minute. At this season the population of New England is greatly increased by the summer travel, which increases each year. The States of Massachusetts, Maine and New Hampshire are the most benefited, as there is hardly a seaport town on the whole coast of either of these States but that is made richer each year by summer residents from all over the country. The trade is not confined to the sea coast, as the mountains and the country adjacent are also greatly benefited. Their source of wealth comes to New England when everything is dull and quiet elsewhere, and an extremely warm summer is a blessing in disguise for our whole community. A stranger from the West or South traveling through New England must often wonder how the former subsists, and we give an item from the report of the New Hampshire State Board of Agriculture for their benefit: 71,276 horses in the State, 19,401 oxen, 112,706 cows, 46,827 other cattle, 119,999 sheep, a gain of 3328 horses and 1371 cows, and a decrease of 3945 oxen, 8101 other cattle and 10,365 sheep. Stock raising and sheep husbandry have been largely supplanted by fruit growing and the raising of garden products to supply the increased local demand of manufacturing places and the growing summer boarding industry.

The year was one of more than usual prosperity for the farmer, good yields, higher prices and more active demand for his products having prevailed.

San Francisco.

HUNTINGTON-HOPKINS COMPANY.—Since writing our last there has been no material change in the condition of trade. Prices remain about the same; collections continue to improve as we predicted they would, and this, of course, is encouraging. Our city received a lively shaking up on the 9th inst., owing to the explosion of one of our local powder mills; it caused no material damage, however, except breaking a great many windows, which caused a brisk trade in glass for the time being. Many of the windows broken were large French plates, so that the damage was considerable.

Cleveland.

THE W. BINGHAM COMPANY.—The vacation season has arrived, and with it the usual decrease in the volume of business. The Hardwareman is taking his needed rest after the spring scramble, and will be all the better prepared for the rush the fall will bring. The traveling man has "ceased from troubling" and is enjoying life with his family. Country merchants are taking advantage of excursion rates to visit the city and pick up new points, while the city man betakes himself to the country to get out of the noise and bustle of his every-day experience. Mail orders have increased in numbers since the traveling men have been taking their vacation, and this, together with the fact that a number of "house men" are away, keeps every one busy. Trade in spring goods is practically over, the only demand for them coming from merchants who have special orders to fill for belated customers; while orders for fall delivery, inquiries in regard to prices, &c., are beginning to come in. A few weeks hence the annual siesta will be over and trade will be resumed with renewed energy; and we venture the prediction that the fall business will be a good one, despite labor troubles, political agitations, or other disturbing elements that have shown themselves or may appear.

Louisville.

W. B. BELKNAP & CO.—Pending the adjustment of the labor question in the iron regions, it is difficult to predict what the course of the market will be for the summer months. One noticeable effect of the experience of recent years of the trade in buying for advances or on a scare of short supply is the determination of the trade, large and small, not to be led into speculative or excessive buying even although money may be plenty and prices low. The lesson is a good one if it has really been learned, and a disposition to buy on short time, turn the stock as often in the year as possible, and sell for cash as nearly as may be, will have a good effect in bringing about and maintaining an ample and healthy business for manufacturers, jobbers and retailers. There is considerable evidence that the consumer is being heard from all along the line. With good crops, fair prices for agricultural products and reduced farm indebtedness, there is certainly room to hope that the

great agricultural consumers will do their duty. Perhaps the struggle now going on at Pittsburgh and the delay incident to it will balance the account between consumption and production. There is already some evidence of this in the condition of the stocks of Wire Nails, Galvanized Iron and other lines.

New Orleans.

A. BALDWIN & CO.—There is a decided improvement in the situation in this section, and confidence is once more restored. Buyers are not so timid in regard to the outlook for the coming crop. Planters of rice and sugar anticipate one of the largest and heaviest crops ever harvested in this section. Even those interested in cotton are beginning to realize that the outlook is not quite as discouraging as 30 days ago. These pleasant anticipations are being felt in all sections down here by the improvement in the quantity and number of orders. Our travelers report a decided improvement in the general situation in all sections that they frequent, with the exception of the Mexican territory. The prospect of a slightly improved price in cotton has a tendency to make buyers in the State of Texas much more liberal with their orders. There are considerable sections of this State, Arkansas and Mississippi that are still suffering from the recent high waters ; but with all the drawbacks, we can safely say that the prospects have improved wonderfully.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Regarding the conditions of the trade, we can add but little to our remarks made two weeks since, the time intervening having been spent to a great extent in the revision of prices, as well as samples for our salesmen, who are just starting out on their midsummer trip ; consequently an opportunity has not been granted us to judge from their work as to what even their early prospects are. The feeling, however, seems to prevail pretty generally in business circles in our city that a good trade will be brought here during the fall season, notwithstanding the Presidential election and labor troubles. The unfortunate labor troubles in the western part of our State, while they have been creating considerable excitement, have outside of the immediate vicinity caused little or no disturbance to trade from all reports made us. We can only hope for the benefit of all hands that a satisfactory and early settlement can be effected. Collections have been fair up to the present time, showing an improvement over corresponding time last month.

Omaha.

LEE-CLARKE-ANDREESEN HARDWARE COMPANY.—The jobbing trade of this market still continue to enjoy an exceptionally large business. Weather conditions are likely to play a very important part in determining the duration of the present activity. A fair amount of rain and plenty of warm sunshine will keep the crops growing and goods moving, and will also tend to sustain the confidence of the people, and so long as there is no doubt about the future trade must be fair at least. Nebraska merchants, as well as those in tributary territory, are looking more and more to Omaha as their point of supply. The old idea that a merchant could do better by going East to buy has been almost entirely wiped out. The merchant who goes east of Omaha nowadays to replenish his stock is regarded as an old-timer, and not abreast of the present progressive spirit of trade. This city is known to be the best customer the State has for manufactured goods and for live stock and grain raised. As a matter of convenience alone merchants prefer to buy in the same market in which they sell. It is simply the reciprocity idea in practice, and is proving extremely satisfactory to all concerned.

Portland, Ore.

FOSTER & ROBERTSON.—Trade still continues to improve, preparatory to the beginning of harvest. It is now very well known that our crop will be considerably short of that of last year. This is a disappointment, as up to 30 days ago we had the prospect of harvesting the largest crop ever known in this section. However, the volume of business not having been such as for the past two years, our collections this fall should be fully up to or above average. Prices have shown no material change since our last letter, although the tendency will be to a lower level later inthe seas on.

Notes on Prices.

Cut Nails.—The Nail market continues sluggish and without special feature. As usual at this season, the production of the mills is largely reduced. Quotations remain unchanged. The price in the East is quite well maintained on a basis of $1.55 for Steel Nails at mill, on a 30-cent average, freight being equalized. Iron Nails are 3 cents a keg less. On lots of 1000 kegs an abatement of 5 cents a keg is made.

Chicago, by Telegraph.—The Cut Steel Nail manufacturers are in an aggravating position. They are having a stream of inquiries which but few of them are prepared to consider. Only two or three factories are in operation in the entire West pending the annual settlement of the wages question, and very few of the idle factories have good stocks on hand. Those who are so fortunate are in receipt of constant orders from other factories, obliged to purchase Nails to satisfy the pressing wants of regular customers. Prices are firmer and an advance is imminent if the factories continue idle. The lowest price on a 30-cent average is now $1.60, Chicago. Inquiry on a 40 cent average to most of the large factories brought out bids which did not go below $1.55, showing remarkable firmness among the makers. Jobbers are quite generally short of Cut Nails, but continue to sell from stock at $1.70 @ $1.75.

Wire Nails.—Owing to the complications in regard to wages the manufacturers of Wire Nails are refusing to accept orders for future delivery at present prices. In consequence the market has a slightly firmer tone, and while $1.60 @ $1.65 in round lots at mill is still the quotation, the mills refuse to make concessions beyond this figure. Small lots from store in New York are held at $1.85.

Chicago, by Telegraph.—A much better demand is noted for Wire Nails from factory. Buyers want the Nails shipped as quickly as possible, which indicates small stocks in their hands. The market for Wire Nails is evidently affected to some extent by the scarcity of Cut Nails, factory shipments, carload lots, being $1.73, Chicago, now. Round lots might be placed at $1.70, but not with all the manufacturers. The future course of the trade depends on the settlement of the wage question in the steel works and rolling mills. This may take considerable time yet, and meanwhile the stocks of Nails in makers' hands will constitute the sole supply. Jobbers quote $1.75 from stock and report a heavy trade in progress.

Barb Wire.—The Barb Wire market continues quiet, with no change in prices except as manufacturers are unwilling to accept orders for future delivery at ruling quotations on account of possible difficulty in obtaining raw material owing to labor troubles. Present prices are $2.62½ to $2.65 on Four-Point Galvanized at mill. Small lots from store in New York are held at $3.10, with 10 cents off on carload lots.

Chicago, by Telegraph.—Barb Wire trade is quiet as is usual at this season. Carload lots are selling at $2.30 for Painted and $2.75 for Galvanized. Large lots can be had, of course, from manufacturers at a shade under these rates. Jobbers quote $2.40 for Painted and $2.90 for Galvanized.

Wringers.—The National Wringer & Mfg. Company, Canton, Ohio, in their catalogue of Clothes Wringers illustrate the different patterns they are putting on the market and also the Champion Ice Tong. Illustrations and quite full descriptive matter are given of the different goods. Their list is as follows, terms 60 days, or 2 per cent. discount for cash in ten days, with delivery to all points east of the Mississippi River on orders of one dozen or over :

Erie Wringer, with Malleable Iron Frame.

10 x 1¾ $24.00
11 x 1¾ 28.00

Prime Wringer, with Double Rowell Gears.

No. 40. 10 x 1¾ $20.00
No. 50. 11 x 1¾ 24.00

"77" Wringer.

No. 2. 10 x 1¾ $17.00
No. 3. 11 x 1¾ 19.00
No. 4. 12 x 1¾ 22.00

King Wringer.

No. 10. 10 x 1¾ $24.00
No. 11. 11 x 1¾ 28.00

Columbia Wringer.

No. 66, with Double Rowell Gears, 11 x 1¾ $27.00

Pittsburgh Wringer.

No. 99, with Double Rowell Gears, 11 x 2. $33.00

Daisy Wringer.

No. 2. 10 x 1¾ $16.00

Champion Ice Tong.

No. 1.	Small size, japanned	$2 00
No. 2.	Large size, japanned	2.75
No. 1.	Small size, nickel	4.50
No. 2.	Large size, nickel	6.00

Tacks.—Under date July 20, Atlas Tack Corporation, 508 Sears Building, Boston, announce advanced prices in Tacks, Brads, &c., on the entire line of Hardware list goods, papered, dozened and M's. Their "Class A List Discounts" (for Dunbar, Hobart & Co., A. Field & Sons and American Tack Company brands) are as follows, which are subject to a further discount of 25 per cent. Terms net cash 30 days, or 2 per cent. for cash in ten days from date of invoice, freight being prepaid or the actual cost of delivery allowed on goods in quantities of 300 pounds or more, Boston, New York, Philadelphia, Baltimore, and to the principal points on or east of the Mississippi River. It is also stated, under the heading "Class B Discounts," that Loring & Parks and Taunton Tack Company brands are subject to an additional discount of 5 per cent.:

Goods. Papered, dozened and M's.	Straight weights. *	Star weights. * *	Standard weights. * * *	Special weights. * * * *
Amer. Carpet Tacks, Blued	66⅔ %	5 per cent. extra list discount beyond straight weights.	10 and 5 per cent. extra list discount beyond straight weights.	10 and 10 per cent. extra list discount beyond straight weights.
" " " Tinned and Coppered	70 %			
Steel Carpet Tacks, Bright and Blued	66⅔ %			
" " " Tinned and Coppered	70 %			
Swedes Iron Carpet Tacks, S. S., Blued	72½ %			
" " " " S. S., Tinned	75 %			
" " " " Lanc., Blued	55 %			
" " " " Lanc., Tinned	60 %			
American Iron Tacks, Domestic	66⅔ %			
" " " Foreign	62½ %			
Swedes Iron Tacks, S. S., Blued	66⅔ %			
" " " S. S., Tinned	70 %			
" " " Lanc., Blued	55 %			
" " " Lanc., Tinned	60 %			
Swedes Iron Upholsterers' Tacks, S. S.	70 %			
" " " " Lanc	60 %			
Gimp and Lace Tacks, S. S., Blued	62½ %			
" " " S. S., Tinned	66⅔ %			
" " " Lanc., Blued	55 %			
" " " Lanc., Tinned	60 %			
Basket and Trimmers' Tacks, Lanc	52½ %			
" " " S. S.	60 %			
Hungarian Nails	60 %	These are not packed in other weights.		
Common and Patent Brads	55 %			
Leathered Tacks	10 %			
Brush Tacks, S. S.	60 %			
" " Lanc.	45 %			
Looking Glass Tacks, Lanc	20 %			
" " " S. S.	35 %			
Picture Frame Points, S. S	35 %			
" " " Lanc.	20 %			

Pounds, Pound or Half Pound Papers or Bulk.

	Per cent.
Swedes Iron Tacks, Lanc., Blued	55
" " Tinned	60
" S. S., Blued	66⅔
" " Tinned	70
Gimp and Lace Tacks, Lanc., Blued	55
" " Tinned	60
" S. S., Blued	62½
" " Tinned	66⅔
Basket and Trimmers' Tacks, Lanc	52½
" S. S.	60
Steel Carpet Tacks, Blued	72½
" Tinned or Coppered	78
American Cut Tacks, Bulk, Domestic	70
" " Foreign	72½
Swedes Iron Upholsterers' Tacks, S. S.	72½
" Lanc.	60
Finishing Nails	60
Trunk and Clout Nails, Black	62½
" " Tinned or Coppered	66⅔
Hungarian Nails	60
Basket Nails	60
Chair Nails	52½
Cigar Box Nails	45
Tin Capped Nails	50
American Carpet Tacks, Blued	72½
" " Coppered or Tinned	78
Swedes Carpet Tacks, S. S., Blued	72½
" " " Coppered or Tinned	75
Swedes Carpet Tacks, Lanc., Blued	55
" " " Tinned	60
Railroad and Bill Posters' Tacks, S. S.	70
" " " Lanc.	55
Leathered Tacks	10

For Nails, Dozened, in ½-pound papers add 1 cent per pound to list.

The list prices of American Iron Tacks in bulk are same as the list prices of Swedes Iron Tacks in bulk of corresponding sizes.

Net list prices not subject to any list discount, except as below:

Hungarian Nails.

Dozened,	1	1⅛	2 lb to a doz.
Round Heads,	13	14¼	15¾ cts. per doz., net.
Shot Heads,	14¾	15¾	17⅛ cts. per doz., net.
Dozened,	2¼	2⅛	2¾ lb to a doz.
Round Heads,	18¾	21¼	22¼ cts. per doz., net.
Shot Heads,	20	23	23¾ cts. per doz., net.
Dozened,	3	6	lb to a doz.
Round Heads,	23¾	47½	cts. per doz., net.
Shot Heads,	25½	49	cts. per doz., net.

Miners' Tacks, 4-8 and longer. 8 cts. per lb, net.
Hob Nails, all sizes. 8 cts. per lb, net.

SHOE FINDERS' LISTS.

Revised shoe finders' lists are also issued, one, which is designated as E3, being applicable only to points on or east of the longitude of Pittsburgh, and another, which is designated as W3, applicable to points west of Pittsburgh. These lists are subject to a discount of 25 per cent., 30 days, with an additional 2 per cent. for cash in ten days, freight being prepaid or the actual cost of delivery allowed on goods in quantities of 300 pounds or more to Boston, New York, Philadelphia, Baltimore, and to the principal points on or east of the Missippi Rivers.

The Stanley Works, New Britain, Conn., and 79 Chambers street, New York, advise us that they have decided to discontinue the manufacture of Tacks. Their factory, it will be remembered, was destroyed by fire a few months ago, and they have determined not to rebuild.

Bright Wire Goods.—The manufacturers of Bright Wire Goods made an advance last Thursday of 7½ per cent. The new prices are referred to as firmly maintained, and the market in this line is regarded as in an excellent condition.

Wrought Butts and Hinges.—There has been no change in the general condition of the market in this line. It is, however, a matter of general interest that Roy & Co. are for the present at least discontinuing the manufacture of these goods, and have sold their manufactured stock to the Stanley Works.

Glass.—The Glass market has developed no new feature during the past week, and its condition is substantially as at our last review. Quotations are generally regarded as having reached bottom, and some hope is expressed that high prices will prevail before very long. Both the American and imported Glass are not in large supply and there are no accumulated stocks. A fair demand is reported for imported Glass and prices are pretty firmly maintained. The imports of Glass are not heavy and do not exceed the regular quantities at this time of year. We are advised that stocks of French Glass in this market are not as large as they were at the same period last year. Currrent prices are as follows: American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount; French Window Glass, 80 and 5 per cent. discount; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

Letter from Polhemus Lyon.

WE TAKE PLEASURE in laying before our readers the following letter just received from Polhemus Lyon, our special foreign representative, who writes from Melbourne, Victoria, under date June 11. It will be observed that reference is made to the depressed condition of trade, owing to the financial disturbances to which we have already referred:

The seriously depressed condition of trade and finance in Melbourne shows no improvement. The importers are relying on their stock to supply all demand in the immediate future, and are still declining to make up any general orders.

The poor commercial traveler out here from England or America has hard lines of it this year. It is not probable that there will be a revival of business under twelve months. The colony has got ahead of itself, so to speak, and must wait to catch up.

It is stated, with seeming good reason, that there are enough commercial buildings and private residences here to meet any demand for the next five years.

The Government has begun to let out contracts for the sewerage system (Melbourne, with a population of nearly half

a million, has endured open sewers to this date) and has organized a permanent sanitary exhibit at the Metropolitan Board of Works in this city, that all interested may learn what are the most approved appliances for household use in this department.

Plumbers and mechanics in kindred lines have had no experience in this work, so that the display is attracting considerable interest—so far there are only exhibits from English manufacturers.

On Earthenware we may have to yield the palm to the mother country, but why should we not enter the lists on brass and copper fittings?

This colony is elated over their success in exporting butter and cheese to the Old Country. Successful shipments during the year have amounted to some thousands of tons; this is stirring up an increased demand for all appliances relating thereunto.

The Government has lately inaugurated competition between potato harvesters, and so far American machines are carrying off the palm.

A practical milking machine has lately been imported from Great Britain, which has proved a success in Scotland, and the several tests given here are all very favorable to this appliance, the laborers confessing that it is far ahead of hand milking. This machine is worked by an air pump, by which one man can easily supply the power for, say 30 cows, though it is anticipated that in large dairies an engine would be found desirable.

The tendency of this colony is growing more and more toward agriculture, which pushes sheep stations (or ranches, as we would call them) further and further away, the fact being that there is very little land in Victoria which is not practicable for the farmer, so that products popular with the agriculturist have perhaps a better prospect in the near future than Builders' Hardware or Mechanics' Tools.

I find *The Iron Age* is received by a large proportion of the Hardware houses in this city. Some of the buyers have spoken of their interest in series of articles relating to arrangement of stores and their profit from the suggestions embodied therein.

It is very satisfactory to learn, in traveling around the world, that our own trade paper does not suffer by comparison with those of other mercantiles centers and to realize how much greater its circulation is than any of these.

Trade Items.

THE MISSISSIPPI VALLEY HARDWARE ASSOCIATION met at Lake Minnetonka, Minn., last Wednesday, Thursday and Friday. There was a large attendance and great interest was taken in the discussion of numerous subjects connected with the trade. A committee was appointed to advise concerning the formation of a National Hardware Association. A committee was also appointed to confer with the Western Classification Committee on freight rates and the matter of allowing credits and returning goods.

NEWHALL SHIP CHANDLERY COMPANY, 105 Chambers street, New York, are offering a line of American Flags, which are described as manufactured of the best American bunting, the stars being stitched in by machine and all the work done in the most substantial manner. The company state that the Flags will not wash out or fade. The Flags are offered in sizes from 2 x 3 feet to 20 x 30 feet. Sizes 3 x 5 feet and larger contain 44 stars, smaller sizes containing 13 stars. The company are also prepared to fill orders for Burgees, Yacht Designs, Campaign and Decoration Flags at short notice.

JOSEPH C. THOMS and H. L. BRENEMAN of the Peerless Freezer Company, Cincinnati, Ohio, announce that they have sold out their entire interest in the business and dissolved partnership, this action having taken effect July 2.

MERRIAM BROS., Waverly, N. Y., have disposed of their Hardware, Stove and Plumbing business to A. M. Bouton of Van Wert, Ohio, who will continue it at the old stand.

THE WIRE FABRIC COMPANY, Homer, N. Y., are putting on the market the Elastic Enameled Fruit Evaporator Cloth, which is referred to in their advertisement on another page. This Cloth is described as containing no zinc or other poisonous matter, is acid proof and is not affected by high temperatures. Its cleanliness and low price are also mentioned.

IN THE ADVERTISEMENT in our last issue relating to Adams' Sectional Dinner Pail, manufactured by Dean & Burt Mfg. Company, Owego, N. Y., the address of these parties was given as Oswego, N. Y. The trade will please note the correction.

THE BROWN & FOSTER HARDWARE COMPANY, Los Angeles, Cal., have sold their entire business to the California Hardware Company, who will continue it at 128 South Spring Street. The officers of the new company are J. A. Henderson, president; T. J. Weldon, vice-president; and William F. Marshall, secretary and treasurer.

RUSSELL & ERWIN MFG. COMPANY, New York, have been appointed agents for the Walling Shutter Bower, manufactured by the Walling Patent Shutter Bower Company, Frederick, Md. This article was described in *The Iron Age* some weeks since.

GUSTAV VINTSCHGER, president of Market & Co., 95 North Moore street, New York, who are extensive importers from and exporters to Great Britain, the Continent and India, sailed July 7 for Hamburg, on the steamer Augusta Victoria. While abroad he will visit their London and Hamburg branches, thus combining business with recreation.

THE TRADE WILL OBSERVE the advertisement on another page which illustrates Zimmerman's Steel Bar Blind Fastener, which is manufactured by Tyson & Zimmerman, Frederick, Md., for whom W. H. Jacobus is agent, 90 Chambers street, New York. The special feature of this Blind Fastener will be recognized, as the blinds can be opened or closed without reaching out. They are also alluded to as made of the best material and offered at a moderate price. They are adapted to all sizes of blinds, and can be attached without cutting. We are advised that they are regarded with favor by many architects, and have of late been meeting with an increasing sale. The advertisement gives, it will be observed, the names of a number of leading houses by whom they are handled.

WILLIAM WOEPKING, hardware merchant, of Burlington, Iowa, is making an extensive European trip, the completion of which will require several months' time.

UNDER THE HEADING of "It is Reported"—in our last issue mention was made of a burglary in the Hardware establishment of Chatfield & Co., Owego, N. Y. The style of the firm was, however, incorrect, and it should have read Storrs, Chatfield & Co.

C. E. WOODRUFF, 235 Lake street, Chicago, purchased last week the entire stock of goods of the Chicago Axe & Tool Company of Hammond, Ind., aggregating over 6000 dozen Axes, owing to the fact that the company have concluded to remodel their factory and commence the manufacture of a different line of goods. These Axes are guaranteed, and as Mr. Woodruff bought them for cash, he is in a position to make some interesting prices.

AS WE GO TO PRESS we learn of the death, on Tuesday evening, of G. M. Hanchett of Woodrough-Hanchett Company of Chicago.

J. C. MCCARTY & CO., 97 Chambers street, New York, have issued a card in which the official 1892 Presidential electoral vote is given, together with a list of the manufacturing concerns for whom they are agents. Among the latter we notice the Coes Wrench Company; A. E. Dietz, Locks and Night Latches; Enterprise Mfg. Company, Sad Irons, Coffee Mills, Meat Choppers, &c.; HP Nail Company; G. S. Foos Company, Lawn Mowers; Rhode Island Horse Shoe Company, Foos Mfg. Company, Forges, Blowers and Drills; National Wire Mat Company, Peters Cartridge Company, Toledo Block Works and Kohler & Co., Oscillating Curry Combs. They are also agents for manufacturers of Steel Goods, Horse Nails, Horse Rasps, Farriers' Tools, Barbed Wire, Staples, Fence Wire, Rivets, Stove Bolts, Machine Bolts, Coach and Lag Screws, Axes, Hatchets, Anvils, Rubber Belting and Packing, Carriage and Wagon Jacks, Die Stocks, &c.

WILLIAM DAVEY, 513 Vine street, Philadelphia, has purchased the interest of Charles Davey in the John Davey Mfg. Company, makers of Plain and Stamped Metal Goods, Metal Labels and Checks, &c., and will continue the business as sole proprietor under his own name. He is now engaged in regairs and rearrangement of the plant, and proposes making some considerable extensions in the manufactory.

ELSEWHERE IN THIS ISSUE appears the advertisement of the McKinney Mfg. Company, Allegheny, Pa., manufacturers of Steel Hinges and Butts. During the first six months of this year the plant of the above firm has been idle only a few days, and notwithstanding their large capacity for production they advise us that they are compelled to keep their large works in constant operation in order to fill orders.

FRANK F. WESTON, a well-known and popular traveling salesman for Hulbert Bros. & Co., New York, was married to Miss Alice E. Seymour in the Congregational Church at Torrington, Conn., on Thursday, June 30. Mr. and Mrs. Weston, after a tour, will reside at Farrington.

AMONG THE SPECIAL NOTICES in this issue will be observed one in which buildings in Omaha, Neb., are offered for rent. They are referred to as suitable for manufacturing, jobbing and retail, and are equipped with side tracks, platforms for loading, &c. It is intimated that the owner might take an interest in the business or manage it if desired.

THE ENTERPRISE MFG. COMPANY, Akron, Ohio, issue cards 8 x 10 inches, showing catches of salmon and pickerel made with Pflueger's Luminous Trolling Spoons. The salmon shown is claimed to

be the largest land locked salmon ever caught with hook and line, weighing as it did 24½ pounds. The pickerel are represented as weighing from 7 to 10 pounds each.

MALONE, COLLINS & Co., Geneva, Ala., are building two brick stores in Dothan, Ala., and intend opening a stock of Hardware in one of them during next month. They will also continue their business at Geneva as heretofore.

F. G. REINECK opened June 1 a Hard ware store and tin shop at Canistota, S. D. The store is 24 x 80 feet, and is equipped, we are advised, with all the conveniences of a modern Hardware emporium.

Price-Lists, Circulars, &c.

THE TABB & JENKINS HARDWARE COMPANY, Baltimore, Md.: A well-arranged, fully illustrated and nicely printed catalogue for the trade, describing a portion of the goods dealt in by them for sporting and other uses. Considerable space is given to Guns, Revolvers and Ammunition. Shot Guns of many kinds, domestic and foreign, breech and muzzle loaders, magazine and single shot, double and single barrel, of various weights, gauges and finishes are shown, together with the leading makes of Rifles for hunting, target and gallery shooting, and Air Guns. Gun implements, including Loaders, Breech Closers, Recappers, Powder and Shot Measures, together with Calls and Whistles, canvas and leather goods, among them Covers and Cases, Cartridge Belts and Bags, Hunting Coats, Game Bags, Leggins, Shooting Hats, Powder Flasks and Shot Pouches are illustrated in large variety. Considerable space is assigned to Ammunition, Shells, Wads, Caps, Primers and a large assortment of gun material. The book is well classified, containing 52 large pages, the list prices of each article being given.

THE GOULDS MFG. COMPANY, Seneca Falls, N. Y., and 16 Murray street, New York. Pumps and Hydraulic Machinery. This is a pamphlet unique in many respects. The back cover forms a detachable postal card, which is to be used if find out why Gould's Pumps are better.

RECTOR & WILHELMY COMPANY, Omaha, Neb. Circulars relating to Powder, Binder Twine, Oil Stoves and Ranges. A picture of their Mascot accompanies the circulars.

KENTON LOCK MFG. COMPANY, Kenton, Ohio: Rim Latches and Locks, Mortise Locks, Mortise Room Door Sets, Mortise Vestibule Latches, Butts, Sliding Door Locks, Sash Lifts, Sash Locks, Drawer Pulls, Cupboard Catches, Refrigerator Trimmings, &c. A specialty is made of Refrigerator Trimmings, and a separate pamphlet issued embracing the goods shown in the catalogue. Goods are finished in light bronze polished surface; dark background polished surface, chocolate background polished surface, Old Copper, Oxidized Brass, Oxidized Silver, Antique Brass, Dipped Brass, the natural color of the metal and Bronze Plated. Special attention is called to their Bronze Plated work on Iron Sets and Butts, finished in Old Copper, Antique Brass or Bronze. To obviate the necessity of figuring long lists of discounts, net prices are made on all goods catalogued. Their natural advantages of manufacturing cheaply are referred to as many, being located in the great gas and oil belt, and on three trunk line railroads.

ST. JOSEPH PUMP COMPANY, St. Joseph, Mo.: Circular relating to their Perfection Water Elevator and Purifying Pump. This is an attractive circular, and presents a colored illustration showing the Pump in actual use. It is stated that over half a million of these Pumps are now in use in the United States and foreign countries, the manner in which the water in wells, cisterns, &c., is purified by the Pumps being also explained.

LALANCE & GROSJEAN MFG. COMPANY, 19 Cliff street, New York: Illustrated pamphlet of new goods, with list prices and discounts, showing Agate Cups, "Royal" Saucepans, Sauce and Cook Pots, Covered Tin Steel "Royal" Sauce and Cook Pots and Saucepans, Shallow, Medium and Deep Saucepans of Wrought Steel, both long handle and side handles, together with Covered Soup Stock Pots of the same ware, with and without 1 inch brass faucet with strainer, all of the above goods being seamless.

WIEBUSCH & HILGER, 84 and 86 Chambers street, New York, importers and manufacturers, agents of Gems, Cutlery, and Miscellaneous Hardware, of English, Belgian, German and American make, have just issued a new illustrated catalogue describing the leading patterns of Shot Guns, Rifles and Gallery Pistols they will carry in stock this season. They have also added a few articles, such as Gun Material, Brass Shells, Hunting and Bowie Knives, Daggers, Stilettos, Stocks and Dies, Files, Key Rings, Kennel Chains, Hair and Horse Clippers, &c. The pamphlet shows care and taste in preparation, the arrangement and descriptive matter being comprehensive and complete. It is well printed in color on a superior quality of paper, and consists of 36 pages 9 x 12 inches. Emphasis is given to the fact that "all breech loaders are examined by competent men, each gun being tested with primed shells, and all are guaranteed to be shipped in salable condition." Attention is called to their "Chas. F. Wiebusch Featherweight" Shot Gun, the following notice being engraved on all barrels: "This gun has been tested twice. First charge—powder, 12 drams; shot, 1¼ ounces. Second charge—powder, 6½ drams; shot, 1⅞ ounces, as witness the Government marks of the Birmingham proof house: ‡ ‡" It weighs 5 to 5¾ pounds, 28 to 30-inch barrels, 12 and 16 gauges. In addition to many other manufacturers represented by them, they are sole agents in this country for Fabrique Mécanique d'Armes à Feu, Liége, Belgium, manufacturers of the celebrated Continental, Triumph, Universal and Excelsior Machine-made Guns and Rifles; J. P. Sauer & Sohn, Suhl, Germany, manufacturers of Machine made Three-Barrel Combined Rifle and Shot Gun and High-Grade Breechloading Double-Barrel Shot Guns; J. Stevens Arms & Tool Company, Chicopee Falls, Mass., manufacturers of Stevens' Rifles and Pistols, known throughout the world as the best Small-Bore Arms made.

P. & F. CORBIN, New Britain, Conn., and 24-26 Murray street, New York. Supplement No. 4 to their 1885 Catalogue. Among the goods noted are Loose Pin Butts, Letter-Box Plates, Extension Top Flush Bolts, Door and Drawer Pulls, Push Plates, Drop Handles, Sash Lifts, Axle Pulleys, Elevator Sheaves, Electric Push Buttons, Mortise Locks, including their Master Keyed Cylinder in connection with their Harvard Lock, with an assortment of Bronze Metal Trimmings for Sideboards, Bookcases, &c., together with a number of new patterns of Bronze Metal Hinge Plates. The company announce that it was their intention to have had ready for distribution before now their new complete catalogue, which is in process, but circumstances have prevented. They are expecting to have it ready early in 1893.

THE PECK, STOW & WILCOX COMPANY, Southington, Conn., and 27 Chambers street, New York: Illustrated circular calling attention to Little Giant Meat Cutters, Nos. 310 and 410 series as now constructed, some improvements being noted in the former method of manufacture, a new feature being the clamp to fasten Cutter to bench or table, recently patented. Also circular of the latest addition to their line of Meat Cutters, the Triumph No. 505, which was noticed in a recent issue.

BRIDGEPORT BRASS COMPANY, Bridgeport, and 19 Murray street, New York: June, 1892, catalogue. The catalogue is finely printed and on the fourth page an illustration of their trade-mark is given with the intimation that all goods bearing this mark are warranted. The various lists of Brass, Copper and German Silver, in Sheets Rods, Wire; Brazed and seamless Brass and Copper Tubing, Copper Rivets and Burs, Escutcheon Pins, &c., are given place in the catalogue. Among some of the new things are 25 patterns of fancy embossed Brass and Bronze, most of which are new designs. Brass and Iron Jack and Safety Chain, Seamless Brass Ferrules, Checks, Cuspidors, Machine Oilers and Burners are noted, together with tables of decimal equivalents, difference between Wire Gauges, weight of Copper and Brass Wire and Plates, which are always of value to workers in metals.

It Is Reported—

That the Hardware store of I. B. Dupont, Somerville, Mass., was damaged by fire on the 14th inst.

That the Hardware store of L. W. Wilson, Greeley, Kan., was destroyed by fire on July 4.

That L. H. Todd & Co., Hardware dealers, Stratford, Conn., are building an addition to their establishment.

That the Hardware firm of J. H. McArthur & Co., Argyle, Minn., have disposed of their business.

That A. G. Obernolte, dealer in Hardware, Arlington, Minn., has been succeeded by A. Berfield & Son.

That Shimer & Morse, Hardware dealers, Creede, Col., are preparing to rebuild their Hardware store.

That the store of the Williston Hardware Company, Billings, Mont., was entered by burglars on the morning of the 6th inst., and $200 worth of Revolvers, Knives, &c., stolen.

That Sanquist Bros. have recently commenced the retailing of Agricultural Implements at Orion, Ill.

That E. E. Beebe, Everly, Iowa, has sold out his Hardware business.

That C. E. Lindsley, dealer in Hardware, Oneida, N. Y., has been succeeded by Lindsley & New.

That John B. Sheridan is now carrying on the Hardware business formerly conducted by Orr & Sheridan, Piqua, Ohio.

That the Hardware store of E. H. Lowe & Co., Salix, Iowa, is soon to be sold to John Lowe.

That the Alliance Supply Company, dealers in Hardware, Fullerton, Neb., have been succeeded by E. B. Spackman.

That among the new Hardware firms recently entering business in St. Louis that of Salomo Biedermann Hardware Company are doing a heavy trade. Mr. Salomo was associated with E. Wachter of that city for twenty eight years, having entire control of the business during the past twelve years. Mr. Biedermann was also employed with Mr. Wachter, his term of service amounting to seventeen years.

That the following Rutland, Vt., Hardware dealers closed their stores from Saturday, July 2, to Tuesday, July 5: L. G. Kingsley, A. C. Bates and W. C. Landon.

That the Hardware business of Gilbert & Haines, York, Pa., is increasing so rapidly that they are enlarging their storeroom by an addition of 26 feet. It will be one of the finest stores in the county when completed.

That Frank Waldschmidt has succeeded to the Hardware business formerly owned by Bierrie & Schoof at Waverly, Iowa. Mr. Waldschmidt was for years in the Hardware store of S. H. Curtis & Sons at that place.

St. Paul.

As we go to press we are in receipt of the following advices from Farwell, Ozmun, Kirk & Co. in regard to the condition of business in that section of the country:

There is very little to say on the condition of trade in the Northwest, further than that it is favorable. We have seldom seen it running along so smoothly. It is somewhat ahead of last year and with a good prospect for a crop, we expect a very satisfactory trade for the balance of the year, if prospects are at all nearly realized. Prices are fairly well maintained. Collections this month are up to expectations.

Exports.

SUPPLEMENTARY SHIPMENTS PER SHIP ALEXANDER YATES, JUNE 28, 1892, FOR SYDNEY, N. S. W.

By Walter A. Wood Mowing and Reaping Machine Company.—30 packages Mowers, 30 Harvesters and Binders, 30 Transports, 3 Rakes.

By F. & J. Meyer—15 cases Axe Handles, 10 cases Axe Handles.

By S. Guiterman & Co.—1 case Agate Ware.

By the Coombs, Crosby & Eddy Company.—1 case Adze Handles.

By W. H. Crossman & Bro.—1 case Lawn Sprinklers, 7 cases Agricultural Implements, 6 cases Handles, 11 cases Store Trucks, 5 cases Hay Rakes, 9 cases Corn Mills, 2 cases Emery Wheels, 1 case Cages, 1 case Empty Shells, 1 cask Plated Ware, 1 case Lawn Sprinklers, 1 case Lamp Goods, 91 boxes Axes, 3 cases Rubber Hose, 4 crates Churns, 4 cases Hardware.

By R. W. Cameron & Co.—2 boxes Hardware, 36 packages Agricultural Implements, 43 cases Agricultural Implements.

By W. H. Crossman & Bro.—6 cases Handles, 1 case Pump parts, 8 cases Hardware, 2 cases Whips, 1 case Hardware, 1 case Hoes, 1 case Handles, 1 case Lamp Goods, 4 packages Hardware, 20 boxes Axes, 65 boxes Hatchets, 3 barrels Lanterns, 1 case Carbines, 3 cases Cartridges, 2 crates Handles, 14 packages Hardware, 44 cases Axes, 1 case Call Bells, 1 case Pistols, 5 cases Rakes, 3 cases Forks, 5 cases Handles, 3 cases Guns, 1 case Shells, 2 cases Loading Tools, 1 case Primers, 7 cases Metallic Cartridges, 1 case Rifles, 5 packages Pump Parts, 4 crates Handles, 1 case Brushes, 3 cases Fruit Jars, 49 packages Hardware, 30 cases Adzes, 1 case Plated Ware, 7 cases Handles, 2 boxes Adzes.

By the Coombs, Crosby & Eddy Company.—1 package Adzes, 30 boxes Axes, 20 cases Hatchets, 3 cases Saws, 1 case Hoes, 1 case Hatchets, 1 case Handles, 1 case Shovel Handles, 1 case Table Casters, 1 package Tacks, 1 case Grindstone Fixtures, 1 case Bench Screws, 1 case Plumbs and Levels, 3 packages Pumps, 1 case Snaths, 1 case Boring Machines, 2 cases Sad Irons, 1 case Bench Screws, 1 case Hardware, 24 cases Handles, 4 cases Saws, 1 case Handles, 1 case Hardware, 5 cases Planes, 6 packages Pumps, 7 packages Lawn Mowers, 1 case Carpet Sweepers, 1 case Snaths, 2 packages Levels, 1 case Gauges, 1 case Hardware, 1 case Trowels, 8 cases Garden Tools, 16 bundles Churns.

By W. H. Crossman & Bro.—2 cases Pumps, 1 case Rifles, 1 case Primers and Shells.

SUPPLEMENTARY SHIPMENTS PER BARK ANNIE STAFFORD, JUNE 29, 1892, FOR DUNEDIN, NEW ZEALAND.

By R. H. Dana Company.—3 cases Shovels and Spades, 1 case Granite Ware, 5 cases Axes, 9 boxes Lawn Mowers, 1 case Pumps, 10 packages Hardware.

By H. W. Peabody & Co.—4 packages Hardware, 1 case Mouse Traps, 5 cases Cartridges, 1 case Brushes, 12 packages Hardware, 1 case Mouse Traps, 10 cases Wringers, 1 case Rifles, 7 packages Nails and Tacks.

FOR LYTTLETON.

By R. W. Forbes & Son.—4 cases Horse Nails, 1 case Hardware, 2 cases Guns and Cartridges, 8 packages Tinware, 1 case Carpet Sweepers, 14 packages Hardware, 15 boxes Axes, 1 case Forks, 32 packages Fruit Jars.

FOR DUNEDIN AND LYTTLETON.

By Walter A Wood Mowing & Reaping Machine Company.—212 packages Mowers and Reapers, 2 Harvesters and Binders.

By R. W. Cameron & Co.—2 cases Axles, 1 case Whip Handles, 1 case Drills, 1 case Hoes.

By R. W. Cameron & Co.—2 cases Handles.

By Henry W. Peabody & Co.—444 packages and 4 cases Agricultural Machinery, 7 cases Builders' Hardware, 8 cases Agricultural Machinery, 20 bales Twine, 1 case Handles.

By T. A. Kilgore.—1 case Iron Pumps, 1 crate Clothes Wringers, 3 Washing Machines, 18 Pumps.

By R. W. Forbes & Son.—1 case Handles, 1 case Plow Wheels.

By Winchester Repeating Arms Company.—1 case Tools, 4 cases Cartridges.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Apart from a certain amount of curious interest centered around rumors of an impending consolidation of two prominent manufacturing and jobbing concerns, reference to which has already been made in this department, nothing has occurred to disturb the quiet condition of affairs usually experienced at this season of the year. About the rumored consolidation nothing new transpires; members of the respective firms decline to admit or positively deny that current humor has any solid foundation and persons responsible for the circulation of the rumors have nothing new to add to their original stories. As for new conditions bearing upon the market for Paints, Colors, &c., there are really none to note. The reaction in Pig Lead prices has had no perceptible bearing, presumably for the reason that the decline does not bring cost down below the level that prevailed prior to the late spurt. In other base materials the movements have been very moderate, and at present there is nothing in the situation suggestive of radical changes at a near date. Business, therefore, proceeds in about the routine way and is chiefly at the old line of prices.

White Lead.—For corroders' product the demand is running about the same as it usually does at this season of the year, nothing that would contrast with the summer season distribution of other varieties is noted in any quarter, nor does there appear to be a special effort in the direction of stimulating business through the attraction of concessions on former prices. To the contrary, manufacturers hold to their old lists and the "cuts" made by jobbers are merely a repetition of what has been done for some time past when the pigment has served a purpose as a "leader."

Red Lead, Litharge, &c.—Orders for round lots of Red Lead and Litharge are a rarity at present and other than moderate purchases of Orange Mineral are the exception. Still, the distribution is represented as being fair, better, in some instances, than usual at this season of the year, and prices are given good support all through.

Zincs.—The output of domestic manufacturers is running somewhat ahead of deliveries at the moment, and, in the natural order of things, will continue to do so for some few weeks to come, with the old agreement in force and no reason to suspect any falling off in consumption. Prices remain very steady for all grades. Foreign as well as domestic Zincs are rather slow, but despite that fact and sharper competition from high-grade domestic product, former prices are adhered to.

Colors, &c.—For all lines of Dry and Oil Colors the market has remained fairly steady, although quiet, and there is nothing in the general surroundings that differs from the previous situation. Base materials have undergone no radical change in value, at all events, and competition has been of commonplace character. Ready-mixed Paints are momentarily slow. Demand for Paris Green is now of moderate volume, but former prices and terms are maintained.

Miscellaneous.—The market for Block Chalk has remained quiet and wholly unchanged. Whiting is in about the same position and Putty quite as devoid of new feature. Barytes, Terra Alba and other Clays rather slow, with the tendency of prices more or less in buyers' favor.

Oils and Turpentine.

In nearly every branch of the market for Animal and Vegetable Oils an exceedingly quiet week has been experienced. The exceptions are so few and insignificant that they scarcely deserve the name. It is a simple case of inaction on the part of exporters, extreme indifference among large home trade buyers and the most conservative kind of buying by other consumers. However, the offering nearly all along the line has been of a kind suggesting that sellers are nowise anxious about the present and in a contented frame of mind about the future. Prices, therefore, remain quite steady in the face of slow business.

Linseed Oil.—One of those periodical contests between the National Company and outside Western crushers that come to the surface almost as soon as inconvenience from a dull period is experienced has developed during the past few days. The outcome was the announcement from headquarters that Western brands would be offered in the New York market at 39¢, less 2½ %, for carload lots. This was immediately followed by a drop in the price of New York City brands to 40¢. For the present the market is dull, as well as weak, and further concessions are likely to be made if the weaker Western concerns continue to apply the knife.

Cotton Seed Oils.—Some test offers of round lots of refined product have been made under circumstances suggestive of inclination in some quarters to disturb the previous serene appearance of the market, or to establish lower values in the interest of large Western consumers, whom, it is believed, are about to place orders. Whatever the animus, it is plain that the principal holders of both refined and crude Oil stand out for full previous prices and offer sparingly. Sales have been chiefly at 29¢ for prime crude, 32½¢ for prime Summer Yellow, 33½¢ for Summer White and 37½¢ @ 37¾¢ for Winter Yellow.

Lard Oil.—City pressers are holding their price for prime Oil firmly at 61¢ and claim that current output is closely taken up. From outside sources the offering is moderate also, and Oil that would compare with popular city brands does not appear to be available at less than 60¢. In short, the undertone of the market appears very firm and present indications are that prices will be advanced should the cost of raw material become higher.

Fish Oils.—There is no perceptible increase in the offering of crude Menhaden Oil and latest reports are to the effect that the fishing has continued poor. Stiff prices are therefore insisted upon, but there is no export demand and not enough home buying to bring about an advance. The situation of the market for Sperm and Whale products remains wholly unchanged.

Miscellaneous.—Common Olive Oil has met with freer sale on the spot at 58¢ @ 60¢ and the market appears to be somewhat firmer. Cocoanut Oils have been moving in routine way only and chiefly at old prices. Mineral Oils in general are rather slow and barely steady at old prices.

Spirits Turpentine.—Deliveries have been running abreast with the receipts and prices have, therefore, ruled steadier than of late, although not exhibiting pronounced firmness. On latest dealings the prices ranged between 29¾¢ for regular and 30½¢ for machine barrels.

The Acme Freezer.

Palmer Hardware Mfg. Company, Troy, N. Y., are making the freezer represented in the illustrations herewith given, Fig. 1 giving a general view of the device and Fig. 2 presenting a view of its interior construction. This freezer is made in two forms, the single and the duplex, the former being intended for freezing one mixture only, while the latter freezes two kinds or flavors of cream or a cream and a sherbet at one operation. The cuts show the duplex, which has a partition in the cream chamber and sectional dasher, while the single has no partition, and its dasher is in one piece. The power required to operate the Acme is referred to as so light that a child can do the turning without fatigue. Reference is made to the absence of lead and zinc from all its parts, which with its quick-freezing qualities removes, it is claimed, all possibility of ice cream poisoning. It is pointed out that the cream is thoroughly agitated and always gravitates to the surface, thus insuring a light and smooth ice cream. The manufacturers state that all openings are hermetically sealed, preventing salt getting into the cream. The freezer can be easily and firmly attached to any table having projecting edges. In offering this freezer the company state that they have sought to make it of the best materials in the best manner and as cheaply as consistent with this end. The freezer is described as made entirely of extra coated heavy tin plates and wrought and malleable iron. Other points made in regard to the freezer are that the dasher is held stationary while the cylinder revolves; that the dasher is adjustably held against the walls of the cream can and scrapes off the cream as fast as frozen, mixing it with that nearer the center, and that it agitates both the cream and the freezing mixture.

Fig. 1.—The Acme Freezer.

Fig. 2.—Interior View of Acme Freezer.

The Star Perfection Horseshoe.

The Star Machine Company, 198 and 200 Terrace, Buffalo, N. Y., are offering the above shoe with removable self-sharpening steel calks, as shown in Fig. 1. The shoes are referred to as being made of the best cast steel, and as no direct wear need come upon the shoes themselves, a set of shoes should last several seasons. It is stated that no resetting is necessary except that called for by the growth of the hoof. The calks are made of the best cast steel and are guaranteed by the manufacturers to outwear any three sets put on in the ordinary way. As shown in Fig 2, all toe calks are driven in from the outside, the calk being thicker on one end. This is referred to as a benefit, as the shoe naturally wears more on the outside. The heel calks are driven in from the front end of the shoe. After the calks are driven in, the small end is clinched, as in Fig 3, and to remove the calks the clinch is knocked back. It is claimed that an amount of shoeing can be done with these shoes for $8 that would cost $18 if done by a blacksmith. The excellence of this form of shoe is referred to as follows: It saves the horse's foot from the injury arising from frequent shoeing, particularly where the old-fashioned shoe has to be frequently removed for sharpening; its simplicity and strength; the saving in time, as in less than ten minutes time, without leaving the stable, a horse can be sharp shod and ready for the road, and that a variety of calks can be kept on hand to provide for changes of weather or accident.

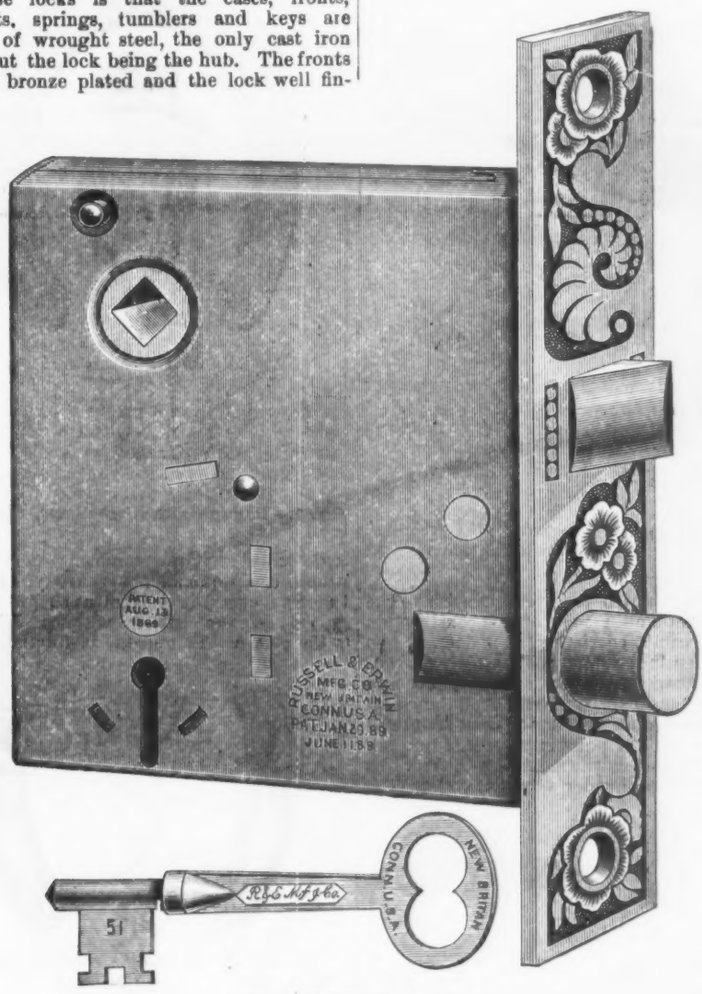
Fig. 1.—Star Shoe with Calks Detached.

Fig. 2.—Star Shoe, Calks Attached, Before Clinching.

Fig. 3.—Star Shoe, Calks Clinched.

Wrought-Steel Door Lock.

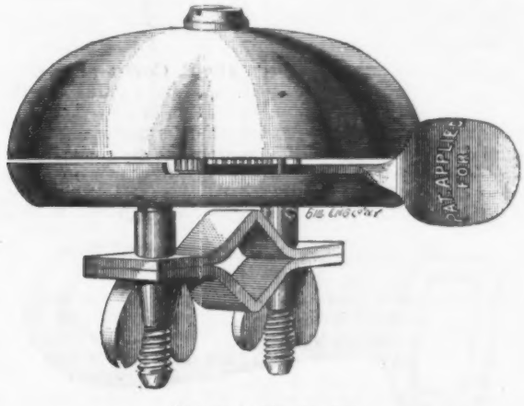
Russell & Erwin Mfg. Company, New Britain, Conn., and New York, are offering the trade mortise locks, as illustrated herewith. The noticeable feature about these locks is that the cases, fronts, bolts, springs, tumblers and keys are all of wrought steel, the only cast iron about the lock being the hub. The fronts are bronze plated and the lock well finished throughout, while they combine lightness and strength in their construction. This will be recognized as another step in the manufacture of wrought steel locks, in which this company have been so successful.



Wrought-Steel Door Lock.

National Bicycle Bell.

The Bridgeport Brass Company, Bridgeport, Conn., and 19 Murray street, New York, desiring to supply the demand for a good bicycle bell at a moderate price, offer their new National bicycle bell, herewith illustrated. It is made of brass, full polished and then nickeled. The article can be quickly adjusted by means of two thumb screws to the handle bar, the lower clamp having an opening at one end enabling it to be swung out, while at the other end there is an elongated hole through which the screw passes, thus avoiding the risk of being lost. The mechanism for ringing, which is simple and strong, consists of a thumb piece working against a steel coil spring having an arm, operating three gears in connection with a ratchet to which the hammer is attached, thereby accomplishing the ringing of the bell both ways, with but one pressure. The sound is clear, distinct and musical. The bell is 3 inches in diameter and weighs but 12 ounces.



National Bicycle Bell.

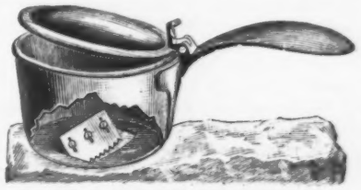
Combined Rose and Escutcheon.

The Claflen Mfg. Company of Cleveland, Ohio, are putting on the market a combined rose and escutcheon of the design shown in the accompanying illustration. They designate the rose and escutcheon as No. 37, with knob No. 598. The escutcheon is made of iron and is bronze plated. The knobs are jet, with bronze-plated shanks to match escutcheon. These are packed with their mortise lock No. 817, which is also bronze plated, thus making a complete set of one mortise lock, two rose escutcheons and one pair of knobs. They are packed three sets in a box, with screws to match.

Combined Rose and Escutcheon.

The Enterprise Ice Shredder.

Enterprise Mfg. Company, Philadelphia, are putting on the market this device, which is illustrated herewith. It is intended for shaving ice coarse or fine. The operation of the shredder is simple, it being only necessary to draw the blade upon the ice, the pressure applied producing fine or coarse pieces, as desired. To remove the finely cut ice from the cup the shredder is grasped firmly in the right hand, striking it inverted upon the

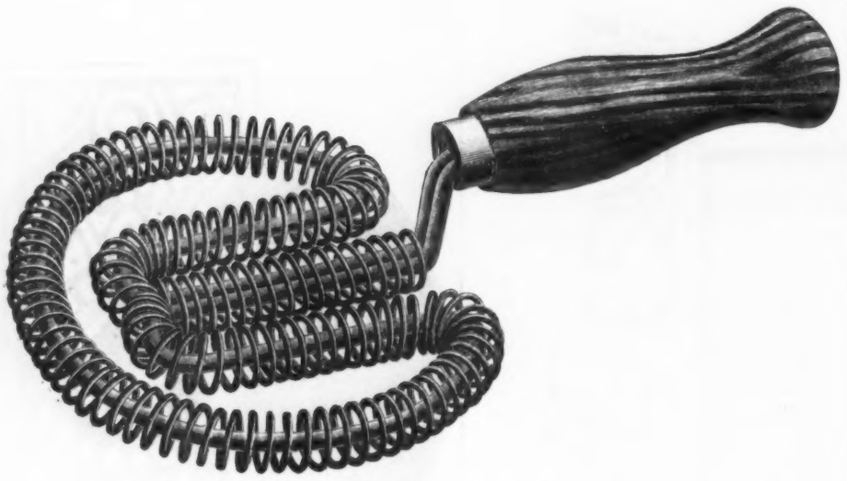


The Enterprise Ice Shredder.

left, being careful to keep the lid closed. The ice is then scraped into some convenient receptacle. It is pointed out that it is not necessary to take the ice out of the refrigerator, as the cup may be filled from the side or top of the cake of ice.

The Humane Curry Comb.

F. E Kohler & Co., Canton, Ohio, for whom J. C. McCarty & Co. are agents, 97 Chambers street, New York, are putting on the market a new curry comb, an illustration of which is given herewith. The cut gives a clear idea of the construction of the comb, consisting, as it does, of two spiral springs wound about a piece of stout wire, shaped as shown, and firmly secured in the handle. This comb is designed especially for use on clipped or short-haired horses, and the point is made that it is impossible to hurt the animals in its use. Its utility as a shedder is also mentioned, as well as its self-cleaning qualification and excellent construction.



The Humane Curry Comb.

The shredder is recommended for use in connection with fruits, drinks, oysters and clams on the half shell, celery, radishes and for many purposes in the sick room.

National Fly Fan.

The Bridgeport Brass Company, 19 Murray street, New York, are now offering to dealers a new fly fan, as shown, which they refer to as a decided improvement on the one heretofore made by them. Among the many advantages alluded to are simplicity, elegance of design, superior workmanship, method of adjusting wings at any angle, and permanently attached key, which thus cannot be removed and lost. It can be rewound while in motion, started or stopped instantly by means of the stop pin in the base, and cannot run down when the wings are removed. The method of construction is such that if for any reason it is desirable to detach the wings there is an attachment which automatically stops the mechanism, thus avoiding the necessity of a rewinding without any corresponding benefit. It runs 90 minutes without being rewound.

National Fly Fan.

Among the latest devices is machinery for shelling and packing peas. One machine will shell 1800 bushels a day and another packs 1500 cans an hour.

Handy Pocket Cork Screw.

The Little Giant Letterpress Company, 16 Warren street, New York, are offering, as sole agents, the Handy Pocket Cork Screw, as illustrated in Figs. 1 and 2. It is described by the company as light, strong, compact, and always ready. Fig. 1 shows it closed in convenient shape to be carried in the pocket without injury to the person. In opening it for use, as shown in Fig. 2, the two sides are pulled apart, which forces the screw down, the operation requiring but a moment. It is nickel plated to prevent rusting.

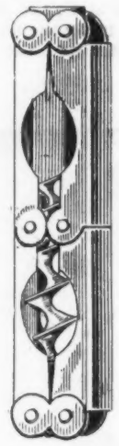
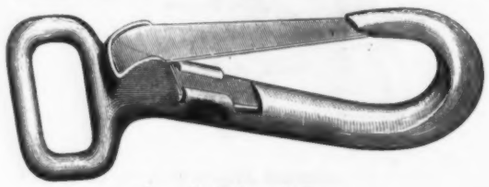


Fig. 1.—Handy Pocket Cork Screw, Closed.

Fig. 2.—Handy Pocket Cork Screw, Open.

Covert's Triumph Snap.

The E. Covert Mfg. Company, Farmer, N. Y., are putting on the market this snap in an improved form, an illustration of which is herewith given. The improvement in the snap consists in the guards at the bend of the spring, which are alluded to as preventing the spring from being pushed out sidewise from under the hook.



Covert's Triumph Snap.

The snap is made in all sizes, loop, round, swivel and open eyes, and double for bit

snap, &c. An illustration of the spring used in the snap is given in the company's advertisement on another page.

Billings' Pipe Wrench.

The illustration herewith shows one of the recent productions of the Billings & Spencer Company, Hartford, Conn. It is

Billings Pipe Wrench.

known as the Billings Pipe Wrench, the jaws of which are described as drop forged of the best tool steel and the handles of the best grade of machinery steel. The advantages claimed for this wrench over similar tools are simplicity of design, few parts, excellent workmanship and finish. A special feature alluded to is that, whether the size of pipe be large or small for which it is adjusted, the angle of the jaws remains the same. Total length, 14 inches. The wrench is made to take pipe from ¼ to 1½ inches.

Mouse and Rat Traps.

Bristol Spring Company, Bristol, Conn., for whom John H. Graham & Co., 113 Chambers street, New York, are general agents, are manufacturing the traps represented in the accompanying illustrations. The frame of the rat trap and spring, Fig. 1, are both made from one continuous piece of wire, making the device, it is stated, stiff and strong as well as cheap. The pan of trigger is concaved underneath to receive bait. The slightest movement of the trigger tends to raise the pan, thus springing the trap and catching the animal, it is claimed, by the head instead of by the legs. The mouse trap, Fig. 2, is referred to as made on the "dead fall" order. The bait is in plain view, and the arrangement of catch and trigger is described as such that while the spring is securely locked, the slightest touch is sufficient to operate it.

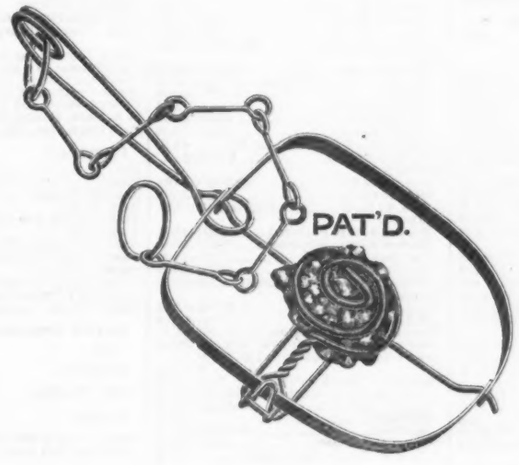


Fig. 1.—Rat Trap.

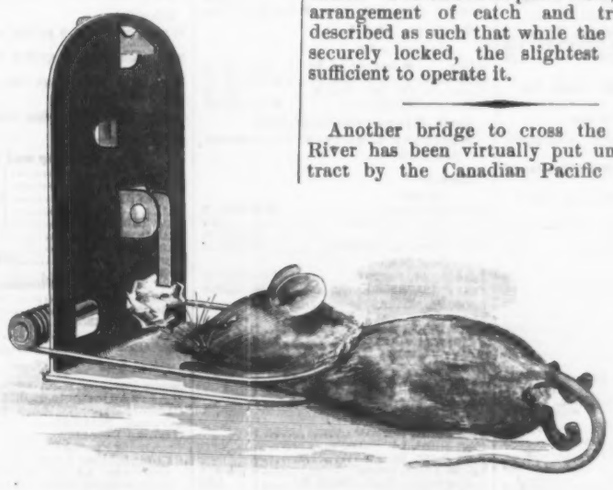


Fig. 2.—Mouse Trap.

Another bridge to cross the Niagara River has been virtually put under contract by the Canadian Pacific Railway Company. The bridge will be constructed between the present cantilever bridge and the suspension bridge, and will consist of a single arched steel span.

CONTENTS.

CURRENT HARDWARE PRICES.

JULY 20, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.
Domestic ..... ₩ doz $3.00, 33⅓%
Excelsior ..... ₩ doz $10.00 ..... 50&10&2%
North's ..... list net @10%
Elmmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils.—
Eagle Anvils, ₩ ℔ 10¢ ..... 15@15&5%
Peter Wright's ..... 11@11½¢
Armitage's House Hole ..... 10½@11¢
Am. Wrought, Horseshoe brand. 11@11½¢
Trenton ..... 10@10½¢
Wilkinson's ..... 10½@11¢
Moore & Barnes Mfg. Co 33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00 ..... 30%
Cheney Anvil and Vise 25%
Allen Anvil and Vise, $3.00 ..... 40&10%
Star ..... 45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—
Douglass Mfg. Co. } 70&10&5%
Wm. A. Ives & Co. } 70&10&5%
Humphreysville Mfg. Co. } 70&10&5%
French, Swift & Co. (F. H. Beecher, P. S. & W. Co. ..... } 70&10&5%
Rockford Bit Company ..... } 70&10&5%
Cook's, Douglass Mfg. Co. 55%
Cook's, N. H. Copper Co. 50&10@50&10&5%
Ives' Circular Lip 60%
Patent Solid Head 30%
C. E. Jenning & Co., No. 10, extension lip 40%
C. E. Jennings & Co., No. 30 ..... 60%
C. E. Jennings & Co., Auger Bits, ₩ set, 33⅓ quarters, No. 5, $5; No. 30, $3.50. 30%
Lewis' Patent Single Twist 45%
Russell Jennings' Augers and Bits. 35&10%
Imitation Jennings' Bits ..... 60@60&10%
Pugh's Black 20%
Pugh's Jenning's Pattern 30%
Car Bits ..... 60@60&10%
Car Bits, P. S. & W. Co ..... 60&10%
Snell's Car Bits 50%
L Hommodieu Car Bits ..... 15&10%
Forstner Pat. Auger Bits 30%
Cincinnati Bell-Hangers' Bits ..... 30&10%

Bit Stock Drills—
Morse Twist Drills ..... 50&10&5%
Standard ..... 50&10&5%
Cleveland ..... 50&10&5%
Syracuse, for metal ..... 50&10%
Syracuse, for wood (wood list). 30@30&5%
Cincinnati, for wood ..... 30&10%
Cincinnati, for metal ..... 45&10%

Expansive Bits—
Clarks' small, $18; large, $26 ..... 35@35&10%
Ives' No. 4, ₩ doz $60 ..... 40%
Swan's 40%
Steer's, No. 1, $26; No. 2, $22 ..... 35%
Stearns' No. 2, $48 ..... 20%

Gimlet Bits—
Common ..... ₩ gross $2.75@$3.25
Diamond ..... ₩ doz $1.25 ..... 4 &10%
Bee ..... 35@25&5%
Double Cut, Shepardson's ..... 45@45&10%
Double Cut, Ct. Valley Mfg. Co ..... 30&10%
Double Cut, Hartwell's, ₩ gro $5.25
Double Cut, Douglass' ..... 40&10%
Double Cut, Ives' ..... 60@60&10%

Hollow Augers—
Ives } 33⅓@
French, Swift & Co. } 33⅓&10%
Douglass' }
Bonney's Adjustable, ₩ doz $48 ..... 40&10%
Stearns' ..... 20&10%
Ives' Expansive, each $4.50 ..... 50&5%
Universal Expansive, each $4.50 ..... 20%
Wood's ..... 25@25&10%
Cincinnati Adjustable ..... 25&10%
Cincinnati Standard ..... 25&10%

Ship Augers and Bits—
L'Hommedieu's ..... 15&10@15&10&5%
Watrous' ..... 15&10@15&10&10%
Snell's ..... 15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls—
Awls, Sewing, Common ..... ₩ gr. 85¢@90¢
Awls, Sould. Peg ..... ₩ gr. $1.50@$1.55
Awls, Pat. Peg ..... ₩ gr. 85¢@88¢
Awls, Shouldered Brad ..... ₩ gr. $1.30@1 40
Awls, Handled Brad ..... ₩ gr. $2.50@$3.00
Awls, Handled Scratch ..... ₩ gr. $4.00@4.50
Awls, Socket Scratch ..... ₩ doz, $1.10@$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality, best brands.	$7.00 @	$7.50
First qual., other brands	6.62½ @ 6.75	
Second quality	6.00	6.50

Axle Grease—See Grease, Axle.

Axles—
No. 1...3¼@4¼¢, No. 2, 5¢@6¢ } 3% cash
Nos. 7 to 14 ..... 60&10% } 3% cash
Nos. 15 to 18 ..... 47½% } 3% cash
Nos. 19 to 22 ..... 70% } 3% cash
Concord Axles, loose collar ..... 4½@6¢
Concord Axles, solid collar ..... 5½@7¢
National Tubular Self-Oiling ..... 33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—
Spring Balances 40%

	No. 2000	20	10
Chatillon, ₩ dos ...	$0.80	0.95	1.75 net
Chatillon Straight Balances			40%
Chatillon Circular Balances			60&10%

Barb Wire.—See Wire, Barb.

Bars.
Crow—
Cast Steel ..... ₩ ℔ 3½¢
Iron, Steel Points ..... ₩ ℔ 2¢

Basins, Wash—
Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.35; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—
Scale Beams, List Jan. 12, '92 ..... 50&10@ 50&10&5%
Chatillon's No. 1 ..... 40%
Chatillon's No. 2 ..... 50%
Custer's 33⅓%

Beaters—
Egg—
Dover ..... ₩ doz $1.50
Duplex (Standard Co.) ..... ₩ doz $1.25
Rival (Standard Co.) ..... ₩ doz $1.00
Duplex Extra Heavy (Standard Co.) ..... ₩ doz $2.50
Bryant's ..... ₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2 ..... $36.00
Easy (H. & R. Mfg. Co.) ..... ₩ gro $12.00
Triple (H. & R. Mfg. Co.) ..... ₩ gro $16.50
Spiral ..... ₩ gro $4.25 @ 4.50
Improved Acme (H. & R. Mfg. Co.) ..... ₩ gro $9.00
Paine, Diehl & Co.'s ..... ₩ gro $24.00
Silver & Co ..... ₩ doz $5.50
Culinary—
Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2 ..... 20 %

Bells—
Cow—
Common Wrought ..... 60&10%
Western, Sargent's list ..... 70&10%
Kentucky, "Star" ..... 20&10%
Kentucky, Sargent's list ..... 70&10%
Kentucky Durham ..... 70&10%
Dodge, Genuine Kentucky ..... 70@70&10%
Texas Star ..... 50&10@50&10&5%
Door—
Gong, Abbe's ..... 33⅓&10%
Gong, Yankee ..... 45&10%
Gong, Barton's ..... 40&10@50%
Crank, Taylor's, ... 25&10%
Crank Brooks' ..... 50&10&2%
Crank Cone's 10%
Crank, Connel's ..... 30&10%
Lever, Sargent's ..... 60&10%
Lever, Taylor's Bronsed or Plated ..... net
Lever, Taylor's Japanned ..... 25&10%
Lever, R. E. M. Co.'s ..... 50&10&2%
Pull, Brook's ..... 50&10&2%
Electric,
Wollensak's 20%
Bigelow & Dowse 20%
Taylor's 20%
Hand—
Light Brass ..... 70&10%
Extra Heavy 70%
White 70%
Silver Chime ..... 33⅓&10%
Globe Cone's Patent) ..... 35&10&35%
Miscellaneous—
Call ..... 40@40&5%
Farm Bells ..... ₩ ℔ 8¢@3½¢
Steel Alloy Church and School Bells. 40%

Bellows—
Blacksmiths' ..... 60&10@60&10&5%
Molders' ..... 40&10@50%
Hand Bellows ..... 40&10@50%

Belting, Rubber—
Common Standard ..... 70@10@75&5%
Standard ..... 70&5@70&10%
Extra ..... 60&10@60&10&5%
N.Y.B.&P.Co., Carbon 60%
N.Y.B.&P.Co., Diamond 50%
N.Y.B.&P.Co., Para 40%

Bench Stops—See Stops, Bench.

Benders and Upsetters, Tire.
Stoddard's Lightning Tire Upsetters. 15%
Detroit Perfected Tire Bender 15%

Bits—
Auger, Gimlet, Bit Stock Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—
Cleveland Block Co., Mal. Iron 50@50&10%
Moore's Novelty, Mal. Iron 50%
Sure Grip Steel Tackle Blocks 25%

Boards, Stove.
Wood Lined Crystal 50%
Oxidized 45%
Embossed 50%
Paper Lined Zinc 55%
Crystal 55%
Embossed 55%
New Tacoma 55%

Bolts—
Carriage, Machine, &c.—
Com. list June 10, '84 ..... 75&10&5&2%
Genuine Eagle, Norway, list Oct., '84 ..... 80&80&10%
Phila. pattern, list Oct. 7, '84 ..... 75@75&10%
R.B.&W., old list 70%
Machine, list Jan. 1, 1890 ..... 80@80&5%
Bolt Ends, list Jan. 1, 1890 ..... 75&10@75&10&5%
Door and Shutter—
Cast Iron Barrel, Square, &c ..... 70&10%
Cast Iron Shutter Bolts ..... 70&10%
Cast Iron Chain (Sargent's list) ..... 65&10%
Ives' Patent Door Bolts 60&10@60&10&5%
Wrought Barrel ..... 70@70&10%
Wrought Square ..... 70@70&10%
Wr't Shutter, all iron, Stanley's ..... 60&10%
Wr't Shutter, Brass Knob, ... 40&10%
Wr't Shutter, Sargent's l st ..... 60&10%
Wr't Sunk Flush, Sargent's list ..... 55&10%
Wr't Sunk Flush, Stanley's list ..... 50&10%
Wr't B.K.Flush. Com'r ..... 15&10%

Stove and Plow—
Stove 60%
Plow ..... 60&5%
R. B. & W., Plow 55%

Tire—
Common, list Feb. 28, '83 ..... 65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83 ..... 65%
Keystone, Philadel., list Oct. '84 ..... 80%
Norway, Phila., list Oct. '84 ..... 75%
American Screw Company:
Norway, Phil., list Oct. 16, '84 ..... 75%
Eagle, Phil., list Oct. 16, '84 ..... 80%
Philadel., list Oct. 16, '84 ..... 80%
Bay State, list Feb. 28, '83 ..... 65%
R.B.&W., Philadel., list Oct. 16, '84 ..... 80%

Borers, Tap.
Common and Ring ..... 20&10%
Ive's Tap Borers ..... 33⅓&5%
Enterprise Mfg. Co ..... 20&10&30%
Clark's ..... 33⅓&35%

Borax ..... ₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.
Per ℔ ..... 2¾¢

Braces.—
American Bit Brace Co.:
Nos. 10, 12, 20 ..... 60&10%
Nos. 11, 21, 24, 27 ..... 70&10%
Nos. 23, 23, 25 ..... 60&10&5%
Nos. 15, 26, 36, 37 ..... 70&10&5%
Ball Braces, net ..... $1.12 to $1.35
Amidon's
Barker's Imp'd Plain ..... 75&10@80%
Barker's Imp. Nickeled ..... 65&10@70%
Ratchet ..... 75&10@80%
Eclipse Rachet 60%
Globe Jawed ..... 40@40&10%
Corner Brace ..... 40@40&10%
Universal, 8 in., $3.10; 10 in., $2.35
Buffalo Ball ..... $1.10@$1.1
Barber's,
Nos. 10 to 16 ..... 50@50&10%
Nos. 30 to 33 ..... 50@50&10%
Nos. 40 to 63 ..... 50&10@50&10&5%
Saxton's,
Barker's Imp. Polished ..... 75&10@80%
Barker's Imp. Nickeled ..... 65&10@70%
Ratchet, Polished ..... 50&10@60%
Ratchet, Nickeled ..... 40&10@50%
Buffalo Ball ..... net, $1.10@$1.35
Bartholomew's,
Nos. 25, 27 and 30 ..... 50&10@60&5%
Nos. 117, 118, 119 ..... 70@70&5%
Common Ball, American ..... $1.00@$1.10
Fray's Genuine Spofford's ..... 50&5@50&10%
Fray's No. 70 to 130, 81 to 133, 207 to 414 ..... 50&10%
Ives' New Haven Novelty ..... 70@70&5%
New Haven Ratchet ..... 60&5@60&10%
Barber Ratchet ..... 60&5@60&10%
Barbers ..... 60&5%
Spofford ..... 60&5@60&10%
Osgood's Ratchet ..... 40&10@50%
P. S. & W. Co., Peck's Patent 60%

Brackets—
Shelf, plain,
Regular list ..... 65@70%
Sargent's list ..... 60½@65%&10%
Shelf, fancy,
Sargent's list ..... 66⅔@66⅔&10%
Other makes at a wide range of prices.

Bright Wire Goods—See Wire.

Broilers—

Henis' Self-Basting.	Inch	₩	10	9x11
	Per doz	$4.50	5.50	6.50

New Haven 50%
Wire Goods Co ..... 65&10%
Morgan Odoriess ..... ₩ doz $12, 33⅓%

Buckets, Well.
Galvanized—
Hill's ..... ₩ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad ..... ₩ doz. 14 qt, $4.25@$4.50
Helwig's Flat Iron Band $3.75
Helwig's Wired Top ..... ₩ doz $4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—
Brass—
Wrought Brass ..... 80@80&10%
Cast Brass, Tiebout's' 50%
Cast Brass, Fast ..... 33⅓&10%
Cast Brass, Loose Joint ..... 33⅓&10%
Cast Iron—
Fast Joint, Narrow ..... 50&10&5@60%
Fast Joint, Broad ..... 60&10@60%
Loose Joint ..... .75@75 &5%
Loose Joint, Japanned ..... .75@75 &5%
Loose Joint, Jap. with Acorns ..... .75@75 &5%
Parliament Butts ..... .75@75 &5%
Mayer's Hinges ..... .75@75 &5%
Loose Pin, Acorns ..... .75@75 &5%
Loose Pin, Acorns, Japanned ..... .75@75 &5%
Loose Pin, Acorns, Japanned, Plated Tips ..... .75@75 &5%
Wrought Steel—
Fast Joint, Narrow ..... .75@75 &5%
Fast Joint, Lt. Narrow ..... .75@75 &5%
Fast Joint, Broad ..... .75@75 &5%
Loose Joint, Broad ..... .75@75 &5%
Table Butts, Back Flaps, &c ..... .75@75 &5%
Inside Blind, Regular ..... .75@75 &5%
Inside Blind, Light ..... .75@75 &5%
Loose Pin ..... .75@75 &5%
Bronsed Wrought Butts 50%

Calipers—See Compasses.

Calks, Toe—
Gautier, One Prong, Blunt ..... 5½@6¢
Burke's, One Prong, Blunt ..... 5½@6¢
Burke's, Two Prong, Blunt ..... 7½@8¢
Burke's, One Prong, Sharp ..... 6½@7¢

Can Openers—See Openers Can.

Caps—
Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
E. L. Waterproof, 1-10's ..... 35@37½
E. B. Trimmed Edge, 1-10's ..... 47@50
E. B. Grnd. Edge, Cent. Fire, 1-10's ..... 47@50
Musket Waterproof, 1-10's ..... 50@55
G. D ..... 27@30
A. B. Genuine Imported 45
Eley's E. B ..... 55 @ 58
Eley's D Waterproof, Central Fire $1.60
Primers—
Berdan Primers, $1.00 25
B. L. Caps (for Sturtevant Shells) $1.00 25
All other Primers, $1.20 25

Cards—List January 28, 1891.
Watson's Cotton, Wool, Horse and File 33%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—
Rim Fire Cartridges ..... 50&5&2 %
Rim Fire Military ..... 15&2 %
Cent. Fire, Pistol and Rifle ..... 35&5&2 %
Cent. Fire, Military and Sporting ..... 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75 ..... 2 %
Blank Cartridges, 32 cal., $3.50 ..... 2 %
Primed Shells and Bullets ..... 15&5&2 %
B. B. Caps, Round Ball, $1.75 25
B. B. Caps, Con. Ball, Swgd., $2.00 25

Casters—
Bed ..... } Brass ..... 55&55&10%
Plate ..... } Others ..... 60@60&10%
Shallow Socket ..... }
Deep Socket ..... 40&10%
Yale Casters, low list 45%
Yale, Gem 70%
Martin's Patent (Phoenix) ..... 45&10&50%
Payson's Anti-friction 70%
Payson's Truck 60%
Giant Truck Casters 30%
Stationary Truck Casters ..... 50&10%
Socket Truck Casters 50%

Cattle Leaders—See Leaders, Cattle.

Cement.
Victor Elastic ..... 5 ℔ pails ₩ ℔ 5¢

Chain—
Trace, Wagon and Fancy Chains, List revised April 21, 1890 ..... 60@ 60&10%
American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.60	5.30	4.45	3.80	3.65	3.50	3.40	3.35

Less than cask lots, add ½¢@½¢ ₩ ℔.
German Coil, list July 19, '92 ..... 60@60&5%
German Halter Chain, list July 12, '92 ..... 60@60&5%
Covert Halter ..... 60&2%
Covert Traces ..... 35@3%
Covert Heel Chain ..... 50&2%
Oneida Halter Chain ..... 60@60&5%
Galvanised Pump Chain ..... ₩ ℔ 5½@6¢
Jack Chain, Iron ..... 75&10@80%
Jack Chain, Brass ..... 75@75&10%

Chalk—
White, case lots, ₩ gr 50¢; small lots 55 @56¢
Red, case lots ... ₩ gr 67¢; small lots 77 @78¢
Blue, case lots ... ₩ gr 75¢; small lots 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W ..... } ..75 @ 75&10 %
New Haven ..... }
Witherby ..... }
Mix ..... }
Ohio Tool Co ..... }
Douglass ..... 75@75&5%
Buck Bros 30%
Merrill ..... 60&10@60&10&5%
L. & I. J. White ..... 30@30&5%
Tanged and Miscellaneous.
Tanged Firmers ..... 40&10@50%
Butchers' ..... $4.75@$5.00
Spear & Jackson's ..... $5 to $
Buck Bros 30%
Cold Chisels, ₩ ℔ ..... 15@15%

Chucks—
Beach Pat ..... each, $3.00 ..... 20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury ..... each, $6.00, 20@30&5%
Syracuse, Bals Pat 25%
Graham Patent 33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks 33⅓%
Universal Lathe Chucks 40%
Independent Lathe Chucks 40%
Drill Chucks 15%
Union Mfg. Co.,
Victor $3.50, 25%
Combination 40%
Universal 40%
Independent 40%

Churns.
Tilden Union, each, 5 gal. $3.25; 7 gal., $3.75; 10 gal. $4.25.
McDermaid Star Barrel Churn, each 6 gal., $2.60; 10 gal., $2.75; 15 gal. 3.00 20 gal., 3.25

Clamps—
R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises. Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.
Butchers'.
Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16. 65&5%
Superior Axle Clips.....60%&5@70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—See Mills, Coffee

Collars, Dog, &c.
Chapman Mfg. Company.....50&10&60%
Medford Fancy Goods Co.....40&10@50&
Embossed, Gilt, Pope & Steven's list. 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Combs, Curry.
Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....20%
American Curry Comb Co.....Net prices

Compasses, Dividers, &c.—
Compasses, Calipers, Dividers.70@70&10%
Beemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers....25&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—
Sash.
Common.....₩ lb, 10¢ @ 11¢
Patent, good quality.....₩ lb, 12 @ 12¢
White Cotton Braided, fair.₩ lb, 24½@25¢
Common Russia Sash.....₩ lb, 12½@13¢
Patent Russia Sash.....₩ lb, 14¢
Cable Laid Italian Sash.....₩ lb. 21@22¢
India Cable Laid Sash .....₩ lb, 12¢
Silver Lake—
A Quality, White, 50¢.....25 %
A Quality, Drab, 55¢.....25 %
B Quality, White, 30¢.....10 %
B Quality, Drab, 35¢.....10 %
Sylvan Spring. Extra Braided White,34¢
Sylvan Spring, Extra Braided, Drab..39¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....26¢
Massachusetts, White.....30¢
Samson—
Braided, White Cotton, 50¢..30&30&5%
Braided, Drab Cotton, 55¢...30@30&5%
Braided, Italian Hemp, 55¢..30&30&5%
Braided, Linen, 80¢.....30&30&5%
Tate's Cotton Braided, White.₩ lb, 28¢.10%
Wire Picture.
Braided or Twisted.....75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—
Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—
Grain.....50&5&2@50&10&2%

Crayons.
White Crayons, ₩ gross.....10¢
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—
Meat.
Dixon's ₩ doz.....40&5%
Nos..... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₩ doz.....40&5%
Nos..... 100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70&70&5%
Nos..... 11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos..... 1 2 3 4 B 5
Each.....$5 $7 $10 $25 $50 $60
terprise.....30%
Nos..... 10 12 22 32 42
Each.....$2 $2.50 $4 $6 $16
as American Meat Cutter.....30%
Nos..... 112 116 118 120 125
Each.....$2.00 $2.75 $3.00 $3.50 $4.00
Miles' Challenge ₩ doz.....45@45&10%
Nos..... 1 2 3
$22.00 $30.00 40.25
Home No. 1 ..... ₩ doz $26.00, 55&10%

Draw Cut, each:
Nos..5 3 6 8
$50 $75 $80 $125 .....20@25%
Beef Shavers (Enterprise).....20&10@30%
Little Giant (P. S. & W. Co.).....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00
Tobacco.
Champion.....20&10@30%
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's..... .....₩ doz, $24, 55&10%
Acme..... .....₩ doz $20.00, 40%
Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's .....₩ doz $11.00, 33⅓%
Penny's, ₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips..... .....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—
Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leel's .....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz.17.5.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger.....₩ doz $15.00
Imperial.....₩ doz $7.50
Shimer's Hollow Handle,₩ doz, $24..50%

Dividers—
See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.
Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,50%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 35%
Breast, Bartholomew's....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll s.....35%
Ratchet, Parker's.....30@30&5
Ratchet, Whitney's.....30&10%
Retchet, Weston's.....30@35%
Ratchet, Moore's Triple Action..35@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....30&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools.....$1.75@$1.85
Twist Drills—
Cleveland.....50&10&5%
Diamond, W. & B.....50&10&5%
Graham's Pat. Groove Shank 50&10&5%
Morse.....50&10&5%
New Process.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%

Drill Bits or Bit Stock Drills—
See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—See Pans, Dripping.

Drivers, Screw.
Douglas Mfg. Co.....30@30&10%
Disston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles.....65&10%
No. 86.....70&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60. .....60%&10&10%
P. S. & W. .....70 %
Knapp & Cowles:
No. 1.....60&10@70%
No. 2.....60&10&10@70&5%
No. 3.....60&5@60&10%
Nos. 4 and 00, Acme and Ideal..50& 5@50&10&2%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.....25%
Kelly's Common Sense ₩ doz $6.00.25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits..... .. ₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00...45%
P. D. & Co.'s all Steel.....50%
Cincinnati.....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.—No. 4 to No. 54 to Flour, CF

	40 gr.	150 gr.	F. FF.
Kegs, ₩ lb.....4½¢	5 ¢	7½¢
½ kegs, ₩ lb...5½¢	6½¢	8½¢
¼ kegs, ₩ lb...6 ¢	6½¢	8 ¢
10-lb cans, 10 in case.....6 ¢	6½¢	8 ¢
5-lb cans, less than 10.....10	10 ¢	

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood 25%

Expanded Metal.
List No. 5.
Lathing.....10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Extracters, Lemon Juice—See Squeesers, Lemon.

Fasteners, Blind—
Mackrell's, ₩ dos. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$9.00
Zimmerman's.....45 %

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&5%
B. & L. B. Co.
West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined...60&10@ 60&10&10%
Cork Lined.....70&5&70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Wa. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $36.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—
Derby and Cincinnati..... .....45&5%
Brewster..... .....50&5%

Files—
Domestic—
Nicholson Files, Rasps, &c. 60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75%
(extra prices on certain sizes)
G. & H. Barnett (Black Diamond)..... 60&10@60&10&5%
Arcade.....60&10@60&10&10%
Eagle.....60&10&5@60&10&10%
Other makers, best brands60&10@60&20%
Fair brands.....60&10&10@70&5%
Second quality.....70&10@75&10%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chesea orse Rasps, Hand Cut...50&10%
Arcade orse Rasps.....60&10%
Imported—
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%

Fixtures.
Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeesers, Fodder.

Forks—
Hay, Manure, &c., Asso. List...70 &70&5%
Hay, Manure, &c., Phila. List.60@60&10%
Plated, see Spoons.

Frames—
Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%
Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓&@ 33⅓&10%
Stearns' Frames and Corners..25@25&10%
Cortland.....40@40&5%

Freezers, Ice Cream—
White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic .....70@70&5%
American.....60%
Buffalo Champion.....65@65&5%
Shepard's Lightning.....65@65&5%
Gem.....65%
Blizzard 70%
Double Action Crown.....60%
Crown.....60%
Star 60%
Peerless.....60&10%
Giant.....60%
Zero.....60&10&10%
Boss and Pet.....60&10&10&10%
Keystone, P. D. & Co., each $1.50.....20%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.
Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10 %; 2 to 5 gro. 20 %; 6 to 10 gro.....30 %
Copper, 1 to 6 dos., 15 %; 6 to 12 dos., 20 %; over 12 dos.....25 %

Furnaces, Soldering.
Burgess No. 3 Gem, tin reservoir....$7.00
Burgess No. Gem, copper reservoir 8.50

Fuse—Dis. 12½%. ₩ 1000 ft.
Common Hemp Fuse, for dry ground..$2.70
Common Cotton Fuse, for dry ground 2.25
Single Taped Fuse, for wet ground.. 2.25
Double Taped Fuse, for very wet gr. 4.25
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—
Stebbin's Pattern.....30@30&5%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....30&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....60&10&10%

Gauges.
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch. 25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30&10%
Wire, Wheeler, Madden & Co 10%
Wire, Morse's.....35%
Wire, Brown & Sharpe's.....10@30%
Wire, P. S. & W. Co.....10&10

Gimlets—
Nail and Spike.....50&10&5%
Eureka Gimlets.....40&10%
Diamond Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Improved Process.....25@25&5%
Dodd s Liquid Glue.....25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.
Fraser's .....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $2.50
Dixon's Everlasting, in bxs...₩ doz 1 lb $1.20; 2 lb $2.00
Dixon's Everlasting....10-lb pails, ea. 35¢
Lower grades, special brands, ₩ gr $5.50@$7.00

Grindstones—
Small, at quarry..... ...₩ ton $7.50@8.00
Family, regular list.....60%
Family, Cleveland Stone Co.....20 %

Grindstone Fixtures—See Fixtures Grindstone.

Gun Powder—See Powder.

Hack Saws—See Saws.

Hafts, Awl.
Sewing, Brass Fer.₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....10&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top.₩ gr $10.00...45&10%
Pat. Peg, Leather Top.₩ gr $12.00.45&10%

Halters.
Covert's, Rope, Jute..... 60&10&10&2%
Covert's, Rope, 7-16-in., Jute.....70&2%
Covert's, Rope, ½ in. Hemp .....80&2%
Covert's Adj. Rope Halters .....40&2%
Covert's Hemp Horse and Cattle Tie. 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
E. Covert Mfg. Co.'s Halters.....33⅓%
E. Covert Mfg Co.'s Horse and Cattle Ties.....33⅓%

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85..... 25&10@35%
Buffalo Hammer Co.....
Humason & Beckley .....
Atha Tool Co.....
Verree.....
} 50@50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumo.
Artisans' Choice, A. E. Nail.....40&10%
Regular V. & P., A. E. Nail.....50%
Horseshoe Turning Hammers 50%
Other Hammers.....50&10%
Cheney's Claw .....40&10%
Cheney's Machinist's & Riveting. 50&2%
Hartford, Nail Hammers.....40 &2%
Hartford, Machinists, &c...50&5@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobler, new list.....25&10%
Peck, Stow & Wilcox 40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 lb and under..... ₩ lb 40¢
3 to 5 lb..... ₩ lb 36¢ } 70&70&10%
Over 5 lb..... ₩ lb 30¢
Wilkinson's Smiths.....10½¢@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods.

Handles—
Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pr..28¢; No 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....18¢
Iron, Wrought or Cast—
Door or Thumb.
Nos..... 0 1 2 3 4
Per doz....$0.90 1.00 1.10 1.35 1.50
60&10&
Boggin's Latches.....₩ doz 30¢@35¢
Bronze Iron Drop Latches..₩ doz 70¢ n
Jap'd Store Door Handles—Nuts, $1.62 ½ Plate, $1.10 ; no Plate, $0.88 ..... net
Barn Door, ₩ doz $1.40.....10&10%
Chest and Lifting.....70%
Wood—
Saw and Plane.....40&10@40& 10&5
Hammer, Hatchet, Axe, &c... 40@40&5%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd. ₩ gr 4.50
Hickory Firmer Chisel, large. ₩ gr 5.00
Apple Firmer Chisel, ass'd...₩ gr 5.00
Apple Firmer Chisel, large...₩ gr 6.00
Socket Firmer Chisel, ass'd...₩ gr 3.00
Socket Framing Chisel, ass'd. ₩ gr 5.00
J. B. Smith & Co.'s Pat File.....50
File, assorted..... ₩ gr 2 75
Auger, assorted..... ₩ gr 5.00 } 80
Auger, large..... ₩ gr 7.00
Pat. Auger, Ives'.....20&1
Pat. Auger, Douglass..... ₩ set $1.25
Pat. Auger, Swan's..... ₩ set $1.00
Hoe, Rake, Shovel, &c..... ...50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Ulmax Anti-Friction.....55%
Ulmax Anti-Friction for Wood Track55%
Zenith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....60@50&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....40&10@60%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ₩ dos pr. 4 in, $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00.....20%
Eclipse.....30&10%
Felix, ₩ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5@50&10%
Lane's New Standard.....50@50&5%
Lane's Parlor.....40%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....35&10@25&10&10%
Faultless.....40@40&5%
American, ₩ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@50&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
Way.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson s.....40%
Moody.....45%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co. Blood's, Hunt's, Hurd's, Mann's, Peck's, Underhill's.....40 & 10
Buffalo Hammer Co.....@
Fayette R. Plumb.....50&5 %
C. Hammond & Son...
Kelly's
Sargent & Co.
P., S. & W. Co.
Ten Eyck Edge Tool Co.
Collins.....10%
Schulte, Lohoff & Co.....50@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 2, 3, 4, 40 and 50.....75&10&5@30%
Clark's Mortise Gravity.....50%
Sargent's Nos. 1, 2, 3, 5, 11, 13 .....75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's Noiseless.....75&10% Niagara.....50% Buffalo.....50% Clark's Genuine Pattern.....80% O. S., Lull & Porter .....75&10% Acme, Lull & Porter.....75% Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—

Western.....₩ dos $4.40, 60%
N. E.....₩ dos $7.00, 55%
N. E. Reversible.....₩ dos $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₩ dos $5.00, 55&10%
Automatic.....₩ dos $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March 1886.....2 %
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30% U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem, and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Bee.....40%
Roy al.....60%
Reliable.....60%
Champion.....60%
Stearn's.....50&10%
Samson, ₩ gross.....$14.00

Extra 5@10 % often given.

Wrought Iron Hinges.

List February 14, 1891.
Strap and T.....50&10&5%
Corrugated Strap & T.....50@50&10%
Screw Hook and Strap.....{ 6 to 12 in., ₩ D. 4¢ / 14 to 20 in., ₩ D. 3½¢ / 22 to 36 in., ₩ D. 3¢
Screw Hook and Eye.....{ ⅛ in., ₩ D 7½¢ / ¼ in., ₩ D 5½¢ / ½ in., ₩ D 4½¢
Rolled Blind Hinges, Nos. 32 and 34 .....50&10%
Rolled Blind Hinges, Nos. 232 and 234 .....55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges "Providence" { 8, 10 & 12 in., ₩ D.....5¢ / over 12 in., ₩ D.....4¢

Hoes—

Eye—

D. & H. Scovil.....30%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. } 70@70& Am. Axe and Tool Co., S. & O. } 5% Pat. }
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton &c.....70%
Warren Hoe.....60%
Magic .....₩ dos $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ dos $18.....60%

Bit.

Extension, Barber's, ₩ dos $15.00.....40@40&10%
Ives, ₩ dos $20.00.....60&5@60&10%
Diagonal.....₩ dos $24.00, 40%
Angular.....₩ dos $34.00, 40&5%

File and Tool—

Bals Pat.....₩ dos $4.00; 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....30%

Hooks—

Cast Iron—

Bird Cage, Sargent's list..... } 60&10&10%
Bird Cage, Reading..... }
Clothes Line, Sargent's list.. }
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%

Wrought Iron—

Cotton.....₩ dos $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10%
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat...45@45&5%
Wire Coat and Hat, Standard.50@50&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80@80&10%
Atlas, Coat and Hat.....60@60&10%
Bright Wire Goods, see *Wire.*

Miscellaneous.

Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ dos $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks .....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition..... .....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. R. & P. Co., Park.....25&5%
N. Y. R. & P. Co., Extra.....40@40&5%
N. Y. R. & P. Co., Dundee....50&10 @ 60%

Huskers—

Blair's Adjustable.....₩ gr $8.00
Blair's Adjustable Clipper ....₩ gr 7.00
Hubbard's Solid Steel.....₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory....₩ 100 ℔. $2.30@$2.40
Self-Heating.....₩ dos $9.00
Self-Heating, Tailors'.....₩ dos $18.00
Mrs. Pott's Irons.....60@60&10%
Enterprise Star Irons.....60@60&10%
XX Cold Handle Sad Iron.....50@60&10%
Ideal Irons new list.50&10@60 & 10&10%
Salamander, Irons.....35%
B. B. Sad Irons, ₩ ℔.....3 @3½¢
Combined Fluter and Sad Iron, ₩ dos, $15.00 .....15%
Fox Reversible, Self-Fluter ₩ dos $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England.....8¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓ %
National Self-Heating.....30 %

Soldering—

Soldering Coppers.....₩ ℔ 19 @ 21¢
Covert's Adjustable, list Jan. 1 1886. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—

Brass, Spun, Plain, list Jan. 1, '91..35&5%
Brass, Spun, Pid.W.M.list Jan. 1, '91.20%
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....₩ dos $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson s Butcher Knives, List Dec. 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AAA1, Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in., $2.00; 7 in., $2.70; 8 in., $3.80, &c.
Ames' Shoe Knives.....20@25%
Ames' Bread Knives, ₩ dos $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn Auburn Mfg. Co. Crescent.....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby, P. S. & W, Mix ... , New Haven.....75 @ 75&10 %
Merrill.....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Hay and Straw—

Lightning, from jobbers....$8.00 @ $9.00
Wadsworth's.....40&7½@40&10%
Carter's Needle.....₩ dos $11.00@$11.50
Heath's.....₩ dos $13.00@13.50
Auburn Hay, Com. and Spear Point. 50%
Auburn, Straw.....40%
Nolin's Hay .....₩ dos $7.00 @ $8.00

Mincing.

Am. (2d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ₩ dos, Single, $2.00; Double, $3 .....40@45%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable.....₩ dos $3.00 .25%
Buffalo Double Adj'table.₩ dos $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10&50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....65&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladles—

Melting, Sargent's.....65&10%
Melting, Reading.....55&10%
Melting, Monroe's Pat...₩ dos $4.00, 40%
Melting, P. S. & W.....35&10&40%
Melting, Warner's.....30%

Lanterns—

Tubular—

Regular, with Guard.....₩ doz $3.50
O. K., with Guard.....₩ doz $3.75
Sid Life, with Guard.....₩ doz $4.00
Square Lift, with Guard ...₩ doz $4.25
Anti-Friction, with Guard...₩ doz $4.50
Brass Plate I, Sq. Lift, Guard. ₩ doz $5 50
Cop. Plated Sq. Lift, Guard...₩ doz $5.50

Police Lanterns (mounting pasteages).

2¾-inch Bull's-eye Police regular..... ₩ dos $3.60
3-inch Bull's-eye Police regular..... ₩ dos $3.90
2¾-inch Bull's-eye Police flash light..... ₩ dos $4.00
3-inch Bull's-eye Police flash light..... ₩ dos $4.50

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason. Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's: Class 3 and 4, Bronsed Iron.....50% Class 3 and 4, Bronze Metal.....25% Class 3 and 4, Brass.....35% Skylight Lifters.....55%
Crown, Eagle and Shield.....50%
Reiher's, list Feb. 20, 1891. Bronsed Iron Rods.....50&10&10&2% Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2 %
Shaw's.....50&10%
Payson's: Universal.....60% Solid Grip.....60&10% Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....50%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; No. 5, $3.....10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $5.50; No. 2, $7.00; No. 3, $7.50 ₩ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4 $2.00; No. 4½, $2.50
Mason's Colored Cotton.....45%
Wire Clothes.. Nos. 18 19 20 100 ft. $3.50 $3.00 $2.50
Ventilator Cord, Samson Braided White or Drab Cotton..₩ dos $7.50, 20%

Links, Open.

Terry's—per gro.:

Nos.	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deits, Nos. 36 to 39.....40%
Deits, Nos. 51 to 63.....40&10%
Deits, Nos. 86 to 96.....30%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin...33⅓% Yale.....net prices
Romer's.....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 20, 1889..... } 65&10@70% Much lower net prices often made.
Mallory, Wheeler & Co., list July, '88.....
Sargent & Co., list Aug. 1, '88
Reading Hardware Co., list Feb. 2, '88.....
B anford Lock Works.....
Brittan, Graham & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deits Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list...70&2%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....35&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deits.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₩ dos, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian, Nos. 119, 120, 130 and 140.....90&10% Other Nos.....65%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co. No. 1010 line.....35&5% No. 41 line.....45&10% No. 61 line.....50&5% No. 21 line.....75%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr., ...33⅓%
Ferguson's 33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'sed.....₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Liesche's pat.), No. 100, ₩ gr., $8; No 105, ₩ gr., $10.....40%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list January, 1889..70%
Security 70%
Giant, list Jan., 1892.....70&5%
Wolcott's.....60&10&5%
Monarch.....50%

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₩ dos, $1.75; ₩ gross.....$17.00

Machines.

Boring—

Without Augers.	Upright.	Angular.	
Douglas	$5.50	$6.75	50%
Snell's, Nice's Pat.	5.50	6.75	40&10%
Jennings	5.50	6.75	45@45&10%
Other Machines...	2.35	2.75	

Phillips' Patent with Augers ... 7.00 7.50 .....
Miller's Falls..... 7.50 .....35%

Fluting.

Knox, 4½-inch Rolls .....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each 35%
Crown Jewel 6 in .....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter .....each, $1.50
Geneva Hand Fluter, White Metal ₩ dos $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 35 ₩ dos 15 00.....40%
Shepard Hand Fluter, No. 110 ₩ dos $11.00.....40%
Shepard Hand Fluter, No. 95 ₩ dos $8.00.....40%
Clark's Hand Fluter, ₩ dos $15.00.....35%
Combined Fluter and Sad Iron, ₩ dos $15.00.....30%
Buffalo ₩ dos $10.00.....10%

Hoisting—

Moore's Hand Hoist, with Lock Brake.....30%
Moore's Differential Pulley Block...40%
Energy Mfg. Co's.....25%
Sure Grip Steel Tackle Blocks.....35%

Washing—

Anthony Wayne, ₩ dos No. 1, $51 No. 2, $45, No. 3, $42.
Western Star ₩ dos No. 2, $45; No. $48
Weisel .....₩ dos $54.00
Fair and Square..... ₩ dos $42.00

Mallets.
Hickory ..... 20&10@20&10&10%
Lignumvitæ ..... 20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Mattocks. Regular list. 60&10@60&10&5%

Measures—
Standard Fiberware, No. 1, peck, ₱ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Menders, Harness—
Per doz. $2.00

Mills.
Coffee—
Box and Side, List Jan. 1, 1888, 60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg Co. 20&10@30%
The Swift, Lane Bros. ..... 20&10%

Mincing Knives—See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers—See Drawers, Money.

Mowers, Lawn.
Philadelphia ..... 60&10%
Pennsylvania and Continental 60%
New Model and Excel lor 60@60&10%
Other Machines ..... 60&10&10@75%

Muzzles—
Safety ..... ₱ doz, $3.00, 25%

Nails,
Cut and Wire. See Trade Report.
Wire Nails, Papered.
Association list, Apr. 11, '92 80&10&10%
Tack Mfrs.' list ..... 70@70&10%
Wire Nails, Standard Penny.
Card June 1 '89 base ..... $1.95 @ $2.00

Horse—

Nos.	6	7	8	9	10	
American	8¾	8¾	8¾	8¾	8¾	..net
Ausable	28¢	26¢	25¢	24¢	3¢,	
						2 40&10&10&2½
Clinton, Fin.	19¢	17¢	16¢	15¢	14¢	30&10%
Essex	28¢	26¢	25¢	24¢	23¢,	
						40&10&5&2%
Lyra	19¢	17¢	16¢	15¢	14¢	40&5 %
Snowden	19¢	17¢	16¢	15¢	14¢	40&5 %
Vulcan	23¢	21¢	20¢	19¢	18¢	.... 25%
Northwest'n	25¢	23¢	22¢	21¢	20¢,	
						25@25&5%
A. C.	25¢	23¢	22¢	21¢	21¢,	
						25&10@33⅓&5%
C. B.-K.	25¢	23¢	22¢	21¢	21¢,	
						25&10@33⅓&5%
Maud S.	25,	23¢	22¢	21¢	21¢,	
						40&10&5 %
Champlain	28¢	26¢	25¢	24¢	23¢,	
						40&5&2%
Saranac	23¢	21¢	20¢	19¢	18¢	...40&5%
Champion	25¢	23¢	22¢	21¢	20¢,	
						10&10&10%
Capewell	19¢	18¢	17¢	16¢	16¢	.....10%
Anchor	23¢	21¢	20¢	19¢	18¢	.....35%
Western	23¢	21¢	20¢	19¢	18¢	... 50%
Emoire Bronzed						.....14 ₱ ℔.

Picture—
Brass Head, Sargent's list ..... 50&10&10%
Brass Head, Combination list ..... 50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Wiles' Patent 40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—List Dec. 18, 1889,

	Square.	Hex.
Hot Pressed	5.35¢	5.9.¢ off list.
Cold Punched	5.00¢	5.10¢ off list.

In packages of 100 ℔, add 1-10¢ ₱ ℔, net; in packages less than 100 ℔, add ½¢ ₱ ℔, net.

Oakum—
Best or Government .. ₱ ℔ 6¾@7½¢
U. S. Navy ..... ₱ ℔ 5¾@6¢
Navy ..... ₱ ℔ 5¢@5½¢

Oilers—
Zinc and Tin ..... 65&10@70&5%
Brass and Copper ..... 50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list 40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass 50%
Olmstead's Tin and Zinc 60%
Olmstead's Brass and Copper 50%
Broughton's Zinc 60%
Broughton's Brass 50%
Gem P. D. & Co. ..... ₱ gro. $2
Steel, Draper and Williams 50%

Openers, Can.
Messenger's Comet ..... ₱ doz $3.00, 25%
American ..... ₱ gross $2.75@$3.00
Duplex ..... doz 25¢, 15@20%
Lyman's ..... ₱ doz $3.75, 20%
No. 4 French ..... ₱ doz $2.25, 55@60%
No. 5, Iron Handle ..... ₱ gr $6.00, 45@50%
Eureka ..... ₱ doz $2.50, 10%
Sardine Scissors ..... ₱ doz $2.75@3.00
Star ..... ₱ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50- 50&10&10%
Excelsior No. 1 $2.50: No. 2 $1.50 ...40%
World's Best, ₱ gross, No. 1, $12.00- No. 2, $24.00; No. 3, $36.00 ..... 50&10%
Universal, ₱ doz $3.00 ..... 55&5%
Domestic, ₱ doz $2.50 ..... 45%
Champion ₱ doz $2.00 ..... 50%

Packing, Steam—
Rubber—
Standard ..... 70@70&10%
Extra ..... 60@60&5%
N. Y. B. & P. Co., Standard 50%
N. Y. B. & P. Co., Empire 60%
N. Y. B. & P. Co., Salamander 25%
Jenkins' Standard. ₱ ℔ 80¢ ... 25@25&5%

Miscellaneous—
American Packing ..... 10¢@11¢ ₱ ℔
Russia Packing ..... 14¢ ₱ ℔
Italian Packing ..... 13¢@14¢ ₱ ℔
Jolton Packing ..... 15¢@17¢ ₱ ℔
"31 ..... 7¢@8¢ ₱ ℔

Pails.
Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ ds.	3.00	3.25	3.75
Heiwig's	2.50	2.75	3.00
Sidney Shepard & Co.	2.25	2.25	3.00
Iron Clad	2.50	2.75	3.00
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.
*Indurated Fibre Ware—*25%
Star Pails, 12 qt ..... ₱ doz $5.40
Stable and Milk, 14 qt ..... ₱ doz $6 00
Fire Pails, deep ..... ₱ doz $5.40
" " round bottom .... ₱ doz $7.80
Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails	6.00	6.50
Horse Pails	5.00	
Buggy Pails	4.00	
Slop Jars (bal. trap)	8.00	9.00
Chamber Pails, 14-qt	6.50	7.50

Pans.
Dripping.
Small sizes ..... ₱ ℔ 6¾¢
Large sizes ..... ₱ ℔ 5¾¢
Silver & Co. (Covered) 40%
Fry—
Standard List:

No.	0	1	2	3	4
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25
No	5	6	7	8	
₱ doz.	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods ..... 75&75&10%
Acme Fry Pans ..... 60&10%
Dust—
Steel Edge, No. 1 ..... ₱ doz $1.75

Paper and Cloth—
Sand and Emery—
List April 19, 1886 ..... 50@50&10%
Sibley's Emery and Crocus Cloth 30%

Parers.
Apple.
Advance ..... ₱ doz $4.75
Baldwin ..... ₱ doz 5.25
Bonanza ..... each 5.00
Daisy ..... ₱ doz 4.00
Dandy ..... each 7.50
Eclipse ..... ₱ doz 4.25
Eureka, 1885 ..... each 15.00
Family Bay State ..... ₱ doz 12.00
Favorite ..... ₱ doz 5.00
Gold Medal ..... ₱ doz 4.00
Ideal ..... ₱ doz 4.00
Improved Bay State .. ₱ doz 27.00 @ 30.00
Little Star ..... ₱ doz 4.50
Monarch ..... ₱ doz 13.50
New Lightning ..... ₱ doz 5.50
Oriole ..... ₱ doz 4.00
Penn ..... ₱ doz 4.00
Perfection ..... ₱ doz 4.00
Pomona ..... ₱ doz 4.00
Rocking Table ..... ₱ doz 6.00
Turn Table ..... ₱ doz 4.50
Victor ..... ₱ doz 13.50
Waverly ..... ₱ doz 4.00
White Mountain ..... ₱ doz 4.00
79 ..... ₱ doz 4.25
78 ..... ₱ doz. 7.00
Potato—
White Mountain ..... ₱ doz $4.50
Antrim Combination ..... ₱ doz $5.50
Hoosier ..... ₱ doz $13.50
Saratoga ..... ₱ doz $5.50

Pencils—
Faber's Carpenters' ..... high list 50%
Faber's Round Gilt ..... ₱ gro $5.25
Dixon's Lead ..... ₱ gro $4.50
Dixon's Lumber ..... ₱ gro $6.75
Dixon's Carpenters' 10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 ..... 60&10@60&10&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pins.
Bone—
Humason, Beckley & Co.'s ..... 60&10%
Sargent & Co's .... $17 and $18 ..... 60&10%
Peck, Stow & W Co.. 50&10&50&10&5%
Curtain—
Silvered Glass ..... net
White Enamel ..... net
Escutcheons,
Iron, list Nov. 11, 1885 .. 50&10@50&10&5%
Brass ..... 60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.

1¼ and under. Plain	70&5@70&10%
1¼ and under, Galvanized	50&5@5 &1 %
1½ and over. Plain	70&5@70&1 %
1½ and over, Galvanized	.60&5@60&10%

Boiler Tubes,
Sizes up to 2¾ in. inclusive ... 57½@60%
Sizes 3 in. and larger ..... 60@55%
Casing 55%
Inserted Joints Casing 50%
Steel Boiler Tubes 30%

Planes and Plane Irons—
Wood Planes—
Molding ..... 40&10%
Bench, First Quality ..... 50&10%
Bench, Second Quality ..... 55&10%
Bailey's (Stanley R. & L. Co.). .. 50&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.) ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10%
Steer's Iron Planes ..... 55@55&10%
Meriden Mal. Iron Co.'s ..... 40@40&10%
Davis's Iron Planes ..... 40@40&10%
Birmingham Plane Co. ..... 50@50&10%
Gage Tool Co.'s Self-Setting ... 20&10&10%
Chaplin's Iron Planes ..... 40@40&10%
Sargent's ..... 30&10@30&10&10%
Standard Tool Co. ..... 50@50&5%
Plane Irons—
Butcher's ..... $5.00@$5.25 to 2
Buck Bros 30%
Auburn "Thistle" ..... } 30&10%
Ohio ..... }
Sandusky ..... }
S. & J. White 25%
Stanley R. & L. Co ..... 50&10%

Plates.
Fellce ..... ₱ ℔ 6¢@6½¢

Pliers and Nippers.
Button's Patent ..... 50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz 40%
Humason & Beckley Mfg. Co. .50@50&10%
Lindsay's Giant 40%
Gas Pliers 60%
Gas Pliers, Custar's Nickel Plated .. 60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel 25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters 20%
Morrill's Parallel, ₱ doz, $12.00 .... 30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 50&50&5%
Cronk's Button Pattern ..... 50&10&60%
Cronk's Carrier Pliers ..... 60@60&5%

Plumbs and Levels—
Regular List ..... 75&10@75&10&5%
Stanley's Duplex ..... 20&10%
Stanley's Handy ..... 20&10%
Disston's 50%
Pocket Levels ..... 70&10@70&10&10%
Davis Iron Levels 30%
Davis' Inclinometers ..... 10&10%

Poachers.
Egg.
Buffalo Steam Egg Poachers, ₱ dos, No. 1, $6.00; No. 2, $9.00 ..... 25%
Silver & Co., 6-Ring .. ₱ doz $4; 3-Ring $2

Pokes, Animal—
Bishop's I. X. L. ..... ₱ doz $6.00
Bishop's O. K. ..... ₱ doz $5.25
Bishop's Pioneer ..... ₱ doz $3.75
Bishop's American ..... ₱ doz $2.75
Eagle, Double Stale ..... ₱ doz $5.75
Eagle, Single Stale ..... ₱ doz $3.75
Buckeye, Single Stale ..... ₱ doz $2.75
Bo ding ..... ₱ doz $4.00

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's 25%
Daley's Improved Handcuffs, 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00 · 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00 ..... 25%
J. P. Lovell's Police Goods 25%

Polish, Metal.
Prestoline 30%
Prestoline Paste 33⅓%
Gaston's Silver Compound 33⅓%

Polish, Stove.
Joseph Dixon's ..... ₱ gro $6.00, 10%
Gem ..... ₱ gro $4.50, 10%
Gold Medal ..... ₱ gro $6.00, 25%
Mirror ..... ₱ pro $6.00, —%
Lustro ..... ₱ gro $4.75
Ruby ..... ₱ gro $3.75
Rising Sun, 5 gro lots ..... ₱ gro $5.50
Dixon's Plumbago ..... ₱ ℔ 8¢
Boynton's Noon Day, ₱ gro 13.00
Parlor Pride Stove Enamel .. ₱ gro
Yates' Liquid, 2 3 5 10 gal. ... ₱ gal ... $0.80 .70 .60 .50
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 12½¢
Jet Black ..... ₱ gro $3.50
Japanese ..... ₱ gro $3.50
Fireside ..... ₱ gro $2.50
Diamond O. K. Enamel .... ₱ gro $19.00
Bonnell's Liquid Stove Polish .. ₱ gro $9.00
Bonnell's Paste Stove Polish .. ₱ gro $6.00
Black Eagle Bensine Paste, 5 and 10 ℔ cans ..... 12½¢
Black Jack Water Paste, 5 and 10 ℔ cans ..... 12½¢
Nickel Plate Paste ..... ₱ gro $6.00
Crown Paste ..... ₱ gross, $7.20
Crown Paste, in 5 and 10 ℔ pails ₱ ℔ 12¢
Black Flag ..... ₱ gross, $7.20
Black Flag, 5 and 10 ℔ pails .... ₱ ℔, 12¢
Black Flag, liquid, in bottles. ₱ gro. $8.00
Diamond Rock Nickel Cleaner .. ₱ gro $10.20

Poppers, Corn—
Round or Square, 1 qt .. ₱ gr $10.00@10.50
Round or Square, 1½ qt .. ₱ gr $15@15.50
Round or Square, 2 qt .. ₱ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned ..... 40&10@40&10&5%
Enameled ..... 40&10@40&10&5%
Family, Howe's "Eureka" 40%
Family, L. F. C.'s "Handy" 50%
Powder.
In Canisters—
Fine Sporting, 1 ℔ each $0.90
Duck, 1 ℔ each ..... .60
Rifle, 1 ℔ each ..... .30
Rifle, ½ ℔ each ..... .18
Rifle, ¼ ℔ each ..... .13
In Kegs—
Rifle, 25-℔ kegs $5.00
Rifle, 12½-℔ kegs 2 75
Rifle, 6¼-℔ kegs 1.50
Duck, 12½-℔ kegs 5.75
Duck, 6¼-℔ kegs 3.00
Trap, 25-℔ kegs 6. 0
Trap, 12½-℔ kegs 3.25
Trap, 6¼-℔ kegs 1.75

Presses.
Fruit and Jelly—
Enterprise Mfg. Co. ..... 20&10@30%
Genis ..... ₱ doz $3.50
Shepard's "Iron City 40%
Silver & Co. ..... ₱ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Scranton ..... ₱ doz $18.00, 33⅓%
Curtiss Hammer ..... ₱ doz $9.00
Giant, No. 1 ..... ₱ doz. $13.00, 10%
Giant, No. 2 ..... ₱ doz, $15.00, 10%
Pelican ..... ₱ doz, $9.00, 25%
Eclipse ..... each, $2.00 net
Economy ..... ₱ doz $6.00

Pulleys—
Hot House, Awning, &c. ..... 60&10%
Japanned Screw ..... 60&10%
Brass Screw ..... 60&10%
Japanned Side ..... 66⅔&10%
Japanned Clothes Line ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ..... 50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating 50%
Shade Rack 45%
Tackle Blocks ..... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ dos $12 00 ..... 40%

Pumps—
Cistern, Best Makers ..... 60@60&10%
Pitcher Spout, Best Makers .... 67½@70%
Pitcher Spout, Cheaper G'ds .. 75@75&10%

Punches—
Saddlers' or Drive, good, ₱ dos ... 60@65¢
Bemis & Call Co.'s Cast Steel Drive .. 50&5%
Bemis & Call Co.'s Springfield Socket. 50&5%
Spring, good quality .... ₱ dos $2.50@3.00
Spring, Leach's Pat. 15%
Bemis & Call Co.'s Spring and Check .. 40%
Solid Tinners', P.S. & W. Co., ₱ dos $1.44, 55%
Tin'rs' Hollow Punches P.S. & W. Co. 20&2%
Rice Hand 2 unches 15%
Avery's Revolving 40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door, Wr't Brass, ₱ ℔ 35¢ 15%
Sliding Door, Bronzed Wr't Iron .. ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door Light. In. ½ ¾ ¼
Per 100 feet $2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 net	$2.15	2.70	3.25 ..net

Terry's Steel Rail, ₱ foot ..... 4½¢
Victor Track Rail, 7c ₱ foot ..... 50&5%
Carrier, double braced, Steel Rail, ₱ foot ..... 4@4½¢
Moore's Wrought Iron 60%
Moody Steel Rail 45%

Rakes—
Cast Steel, Association goods ... 65%@70%
Cast Steel, outside g'ds 60&10&10@70&5%
Malleable ..... 70@70&5%
Gibbs Lawn Rake ..... ₱ doz $1.90
Canton Lawn Rake ..... ₱ doz $3.75
Favorite Lawn Rake ..... ₱ doz $4.40
Ft. Madison Prize Bow Brace and Peerless 60%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 35%

Razors—
J. R. Torrey Razor Co 20%
Wostenholme and Rodgers, $10 to $.. 10%
Jordan's AAAI, new list ..... net
Jordan's Old Faithful, new list ..... net
Galvanic ..... ₱ dos $15.60
Electric Cultery Co ..... Net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co. 55%
Sargent's ..... 60%&10@70&5%
Hotchkiss' low list 30%
Humason, Beckley & Co.'s. ..... 70&10%
Peck, Stow & W. Co's .. 50&10@50&10&10%
Eilrich Hdw. Co., White Metal, low list, 50@50&10%
Hog—
Top of the Hill Ringers ..... ₱ doz $2.00
Top of the Hill Rings. ..... ₱ doz $1.35
Hill's Improved Ringers. .... ₱ doz $1.35
Hill's Old Style Ringers ..... ₱ doz $1.12½
Hill's Tones ..... ₱ doz $3.00
Hill's Rings ..... ₱ doz bxs $1.00
Perfect Rings ..... ₱ doz bxs $1.50
Perfect Ringers ..... ₱ doz $2.15@$2.25
Blair's Hog Ringers ..... ₱ doz $2.00
Blair's Hog Rings ..... ₱ doz 90¢@$1.00
Champion Ringers ..... ₱ doz $2.00
Champion Rings, Double ..... ₱ doz $2.25
Brown's Rings ..... ₱ doz $2.00
Brown's Rings ..... ₱ doz $1.15@1.25
Electric Hog Rings .. ₱ doz boxes $1.50
Electric Hog Ringers ..... ₱ doz $2.00
Major Rings ..... ₱ doz $1.25
Major Ringers ..... ₱ doz $2.00

Rivets and Burrs—
Iron, list Nov. 17, '87 ..... 40%
Copper ..... 60&10%
Coppered Iron, Bettina Brand 40%

Rivet Sets—See Sets.

Rods—
Stair, Brass ..... 25&2%
Stair, Black Walnut ..... ₱ dos 40¢

Rollers—
Barn Door, Sargent's list ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%
Thompson Mfg. Co.'s Lawn Rollers .. 30%

Rope.
Manila, 7-16 in. diam. and larger ₱ ℔ 12½¢
Manila ..... ⅜ in. ₱ ℔ 12½¢
Manila ..... ¼ and 5-16 in. ₱ ℔ 13½¢
Manila Tarred Rope ..... ₱ ℔ 11½¢
Manila, Hay Rope ..... ₱ ℔ 12½¢
Sisal ..... 7-16 inch and larger ₱ ℔ 10½¢
Sisal ..... ⅜ in. ₱ ℔ 10½¢
Sisal ..... ¼ and 5-16 in. ₱ ℔ 11½¢
Sisal, Hay Rope ..... ₱ ℔ 10½¢
Sisal, Tarred Rope ..... ₱ ℔ 9½¢
Sisal, Medium Lath Yarn ..... ₱ ℔ 9½¢
New Zealand, 7-16 in. & larger ₱ ℔ 8½¢
New Zealand ..... ⅜ inch, ₱ ℔ 9½¢
New Zealand, ¼ and 5-16 inch, ₱ ℔ 9½¢
New Zealand, Hay Rope. ..... ₱ ℔ 8½¢
New Zealand, Tarred Rope .... ₱ ℔ 8½¢
Note.—Manufacturers' prices on above 1¢ ₱ ℔ less, f.o.b. factory—less 1½ % for cash
Cotton Rope ..... ₱ ℔ 13½@16¢
Jute Rope ..... ₱ ℔ 6½@7¢
Wire—
List February, 1892.
A 1 kinds 45%

Rules—
Boxwood ..... 80&10&10%
Ivory ..... 50@50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—The following prices are often cut by jobbers.
Disston's Circular ..... 45@45&5%
Disston's Cross Cuts ..... 45@45&5%
Disston's Hand 35%
Woodrough & McFarlin.
Hand, Panel and Rip ..... 30 &30&5%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 18@20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 26@28¢
Champion Extra Thin Back Cross Cuts, ₱ foot ..... 29@31¢
One Man Champion Cross Cuts. ₱ foot ..... 37@40
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip ..... 35&35&5%
Narrow Champion Cross Cuts with Handles, ₱ foot ..... 18@20¢
Champion Thin Back Cross Cuts, ₱ foot ..... 26@28¢
Champion Extra Thin Back Cross Cuts. ₱ foot ..... 29@31¢
One Man Champion Cross Cuts, ₱ ft.. 37@ 39¢

Atkins' Circular Shingle & Heading..50%
Atkins' Silver Steel Diamond X Cuts
₩ foot 70¢
Atkins' Special Steel Dexter X Cuts
₩ foot 50¢
Atkins' Special Steel Diamond X Cuts
₩ foot 32¢
Atkins' Champion and Electric Tooth X Cuts.....₩ foot 30¢
Atkins' Hollow Back X Cuts. .₩ foot 20¢
Atkins' Mulay, Mill and Drag.....40%
Atkins' One-Man Saw, with handles.
₩ foot 40¢
Peace Circular and Mill.....45@45&5%
Peace Hand Panel and Rip....30@30&5%
Peace Cross Cuts.....45@45&5%
Richardson's Circular and Mill.45@45&5%
Richardson's X Cuts.....45@45&5%
Richardson's Hand, &c.....25@25&5%
C. E. Jennings & Co., Hand, Panel and Rip .....45@25&10%

Hack Saws—

Griffin's, complete.....40&10@50%
Griffin's Hack Saw, Blades....40&10@50%
Star Hack Saws and Blades.....25%
Eureka and Crescent.....35%

Scroll—

Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cab. Makers' $15.25%
Barnes' Scroll Saw Blades.....35%

Saw Frames—See Frames, Saw.
Saw Sets—See Sets, Saw.
Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality, ₩ dos $21.00
Hatch, Tea, No. 161....₩ dos $6.75@$7.00
Union Platform, Plain.....$2.10@2.30
Union Platform, Striped.....$2.40@2.50
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Family, Turnbulls.....30@30&10%
Richie Bros.' Platform..... 10%

Scale Beams—See Beams, Scale

Scissors, Fluting.....45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $5.50.....30&10%
Box, 1 Handle.....₩ dos $4.00. 10%
Box, 2 Handle.....₩ dos $6.00, 10%
Defiance Box and Ship.....30&10%
Foot.....50&10@60%
Ship, Common .....₩ dos $3.50 net
Ship, R. I. Tool Co.....10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₩ dos $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Hand, Grand Rapids, list.....25%
Lag, Blunt Point, list Jan. 1, 1890..75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890.....75@75&10%
Bed.....25&5%
Hand Rail, Sargent's.....50%&10%
Hand Rail, H. & F. Mfg. Co...70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent...60&10@60&10&5%
Jack Screws, Stearns'.....40@40&10%

Cork—

Humason & Beckley Mfg. Co..40&10@50%
Williamson's.....33⅓@33⅓&5%
Howe Bros & Hulbert.....35%

Machine—

Flat Head, Iron.....55%
Round Head, Iron 50%

Wood—

List January 1, 1891.

Flat Head Iron	70	5
Round Head Iron	65	5
Flat Head Brass	70	5
Round Head Brass	65	5
Flat Head Bronze	70	5
Round Head Bronze	65	5
Rogers' Drive Screws	82½	5

Extra 10 @ 10&10% of ten given.

Scroll Saws—See Saws, Scroll.

Scythes.

Grain.....40&5@40&10%
Grass.....40&10@50%

Scythe Snaths—See Snaths, Scythe Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools, No. 20, ₩ dos $10.00.....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $13; 4, $9.....45%
Miller's Falls Adj. Tool Hdls.. Nos. 1, $12; 2, $18.....25%
Henry's Combination Haft...₩ dos $6.50
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....50&10%
Common Grad Sets,
No. 42, $10.50; No. 43, $12.50..70&10&5%

Nail—

Square.....₩ gr., $4.00@$4.25
Round.....₩ gr. $3.25
Buck Bros.....27½%
Cannon's Diamond Point...₩ gr.,$12, 20%

Rivet,

Regular list.....50&10%

Saw—

Stillman's Genuine...₩ dos $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ₩ dos $3.25; Cross Cut, 5.25.....45&50%
Common Lever .....₩ dos $2.00.....45&5%
Morrill's No. 1, $12.50.....40&40&5%
No 11, $15.00....40&10@40&10%
Nos. 3 and 4, $18 00.....40&5%
No. 5, $24.00 .....40&5%
Leach's. .No. 0, $8.00; No. 1, $15, 15@20%
Nash's .....20&10@20&10&10
Hammer, Hotchkiss.....$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. .....30&5%
Bemis & Call Co.'s Lever and Spring Hammer.....30&5%
Bemis & Call Co.'s Plate.....10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine.....$13.00, 50&10@60%
Aiken's Imitation.....$7.00, 55&5%
Hart's Pat. Lever.....30%
Disston's Star.....25%
Leopold.....40&10@50%
Atkin's Lever.....₩ dos No. 1, $6.00
Atkin's Criterion.....₩ dos No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.....40&10%
Avery's Saw Set and Punch.....50%
Chieftain Co.'s Superior.....₩ dos $7.00
Chieftain Co.'s Royal.....₩ dos $7.50
Crescent.....₩ dos $3.00
Lloyd's Acme.....₩ dos $15.00, 40&10%

Sharpeners, Knife.

arkins.
Applewood Handles....₩ dos $6.00, 40%
Rosewood or Cocobo a. ₩ dos $900 40%

Shaves, Spoke

Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....30&10%
Cincinnati.....25&10%
Goodell's, ₩ dos $9.00.....25%

Shears—

American (Cast) Iron...75&10@75&10&5%
Barnard's Lamp Trimmers...₩ dos $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓%
Cast Steel Trimmers:
First quality .....80@80&10%
Second quality.....80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears 10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Davenport Cutlery Co.....60@60&10%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list..60%
Galvanic, 3½ to 9 in.₩ dos, $1.00 ₩ inch
Electric Cultery Co.....Net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw.....₩ dos $18.00, 20&10%
Disston's Pruning Hook, ₩ dos $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools.....40%
Pruning Shears, Henry's Pat, ₩ dos $3.75@$4.00
Henry's Pruning Shears, ₩ dos $4.25@4.50
Wheeler, M. & C. Co.'s Combination, ₩ dos $12.00, 20%
Dunlap's Saw and Chisel, ₩ dos $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P., S. & W. Co.....60%

Tinners', &c.—

Shears and Snips (P. S. & W.).....20@25%
Snips, J. Mallinson & Co.....33⅓%

Sheaves—

Sliding Door—

M. W. Co., list July, 1888..50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%

Sliding Shutter—

R. & E. list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Shells—

First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....50&10&2%
Prise.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—

Standard List, July 19, 1890. 40&10&10@40&10&10&5%

Ship Tools—

L. & I. J. White.....30&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phoenix, Diamond State & Bryden's Boss, at factory.$4.00
Bryden's Frog Pressure, at factory.$5.00

Mule—

Add $1 ₩ keg to above prices.

Ox, Wrought—

Ton lots.....₩ ℔ 9¢
1000 ℔ lots.....₩ ℔ 9½¢
500 ℔ lots.....₩ ℔ 10¢

Shot—

	Ton lots	Small lots
Drop, up to B, 25-℔ bag	$1.40	$1.40
Drop, up to B, 5-℔ bag	.35	.35
Drop, B and larger, 25-℔ bag	1.65	1.70
Drop, B and larger 5-℔ bag	.40	.40
Buck and Chilled, 25-℔ bag	1.65	1.70
Buck and Chilled, 5-℔ bag	.40	.40
Dust Shot, 25-℔ bag	2.00	2.00
Dust Shot, 5-℔ bag	.45	.45

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1886.....20%
Note.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15&25%
Hubbard & Co.....30@20&7½%
Lehigh Mfg. Co.....50&10%
R. M. Myers Co.....30%
Payne Pettebone & Son.....33⅓&2%
Remington's (Lowman's Pat.)30&10&40%
Rowland's, Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%
Terre Haute Shovel and Tool Co.....25%

Shovels and Tongs—

Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Sieves—

Mann's Tin Rim.....50&25%
Buffalo Metallic, S. S. & Co.....50&25%
Shaker (Barler's Pat.) Flour Sifters.... ₩ dos $2.00; ₩ gr $21.60
Electric.....₩ gr $21.00
A. & W. Sifters.....₩ dos 2.00
Hunter's.....₩ dos $2.00

Sieves, Wooden Rim—

	Iron.	Plated
Mesh 18, Nested, ₩ dos..	80¢	$1.00
Mesh 20, Nested, ₩ dos..	95¢	1.10
Mesh 24, Nested, ₩ dos..	$1.15	1.25

Skeins. Thimble—

Western list.....75&5@75&10%
Columbus Wrt. Steel..Special net prices
Coldbrookdale Iron Co.....60%
Seneca Falls Pattern.....60%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Slates—

School, by case.....50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring.....60&10&10%
E. Covert's Triumph.....33⅓%

Snaths, Scythe.

List.....50@50&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8½-inch, ₩ dos., No. 5, $8; No. 6X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bro.....40&15%
Reed & Barton.....40@40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co...40, 15&5%
L. Boardman & Son.....50&10@15%

Miscellaneous.

Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 20 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50&5%
No. 49 Nickel Silver.....50&10&5%
Wm. Rogers Mfg. Co.
Rogers' Silver Metal.....50, 10&5%
1847 Rogers' German Silver.....60&5%
225 Rogers' Nickel Silver.....50&5%
German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60@60&5%
Boardman's N'ck'l Silver, list July 1, 1891.....60&7½&5%
Boardman's Britannia Spoons, case lots.....60&5% cash

Springs—

Door.—

Torrey's Rod, 89 in.....₩ dos $1.20@1.25
Gray's, ₩ gr., $20.00.....25%
Bee Rod ₩ gr., $20.00.....20@25%
Warner's No. 1, ₩ dos. $2.50; No. 2, $3.30.....50@50&5%
Gem (Coil), list April 19, 1886.... 10@15%
Star (Coil), list April 19, 1886...20@20&5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....50&10@60&10&10%
Cowell's.....No. 1, ₩ dos, $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₩ dos, $4.50...55&10%
Hercules.....50@50&10%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

Squares—

Steel and Iron.....
Nickel-Plated.....
.30&10@30&10&10%
Try Square and T Bevels.....60&10&10%
Disston's Try Square and T Bevels.....50%
Winterbottom's Try and Miter.....30&10%
Starrett's Micrometer Caliper Squares..... 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's.....₩ dos $2.00
Blair's "Climax".....₩ dos $1.25

Lemon—

Porcelain Lined, No. 1....₩ dos $6.00, 25&30%
Wood, No. 2.....₩ dos $3.00, 35%
Wood, Common.....₩ dos $1.70@1.75
Dunlap's Improved .....₩ dos $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₩ dos.....25&10%
Jennings' Star.....₩ dos $2.50
The Boss.....₩ dos $2.50
Dean's..Nos. 1, ₩ dos $6.50; 2, $8.35; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash....₩ dos $12.00
Silver & Co., Glass.....₩ gro. $9.00
Manny Lemon Juice Extractor:
Standard.....₩ dos $0.75@$1.00
Improved.....₩ dos $2.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger.....₩ ℔ 7@7½¢
Barbed, ¼ in.....₩ ℔ 8@8½¢
Fence staples, Galvanized. } Same price as B'rb Wire. See Trd. Rep.
Fence Staples, Plain.....

Steelyards.....40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods.....35%
Butterfield's Goods.....35%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates.....25@30%
Reversible Ratchet.....30%
Gardner.....25%

Stops, Bench.

Morrill's.....₩ dos $9, 50%
Hotchkiss's.....₩ dos $5. 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....₩ dos $8.....10%
Cincinnati.....25&10%
Terrell's Nos. 1 and 2, ₩ dos., $3; No. 3, $3.60.....30%

Stone—

Scythe Stones.

Pike Mfg Co. list April, 1892.....33⅓%

Oil Stones, &c.

Pike Mfg. Co.:	Price ₩ ℔	
Hindostan No 1	8¢	Dis. 40 @ 40&10%
Sand Stone	5¢	
Washita Stone, Extra	50¢	
Washita Stone, No 1	40¢	
Washita Stone, No. 2	30¢	
Washita Slips, Extra	80¢	
Washita Slips, No. 1	70¢	
Arkansas Stone, No. 1, 3 to 5½ in.	$2.80	
Arkansas Stone, No. 1, 5½ to 8 in.	$3.50	
Turkey Oil Stone, 4 to 8 in	80¢	
Turkey Slips	$2.00	
Lake Superior, Chase	₩ ℔ 18¢	
Lake Superior Slips, Chase	₩ ℔ 20¢	

Stove Polish—See Polish, Stove.

Stretchers, Carpet.

Cast Steel, Polished.....₩ dos $2.25
Cast Iron, Steel Points.....₩ dos 80¢
Socket.....₩ dos $1.75
Gullard's.....35@25&10%

Strops, Razor—

Genuine Emerson.....60@60&5%
Imitation " ....₩ dos $2.00, 20&10&5%
Torrey's.....30%
Badger's Belt and Com.....₩ dos $2.00
Lamont Combination.....₩ dos $4.00
Jordan's Pat Padded, list Nov. 1, '89.50%
Electric Cultery Co.....Net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₩ dos $20, 50@50&5%
Perry .....₩ dos, No. 1, $15.00; No. 0, $21.00.....50&5&50&10%
Draw Cut No. 4, each $50.00.....30%
Enterprise Mfg. Co.....20&10&30%
Silver's.....40&10%

Sweepers, Carpet and Lawn—

Carpet.

Bissell No. 6.....₩ dos $17.00
Bissell No. 8.....₩ dos $20.00
Bissell, Grand.....₩ dos $36.00
Standard.....₩ dos $24.00
Domestic.....₩ dos $21.00
Domestic, No. 2.....₩ dos $32.00
Grand Rapids.....₩ dos $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₩ dos $15.00
Improved Parlor Queen, Nickeled.....₩ dos $27.00
Japanned.....₩ dos $24.00
Excelsior .....₩ dos $22.00
Garland .....₩ dos $18.00
Parlor Queen.....₩ dos $36.00
Housewife's Delight.....₩ dos $15.00
Queen.....₩ dos $16.00
Queen, with band.....₩ dos $18.00
King .....₩ dos $30.00
Weed, Improved.....₩ dos $18.00
Hub.....₩ dos $16.00
Cog-Wheel.....₩ dos $16.00
Easy.....₩ dos $22.00
Monarch.....₩ dos $22.00
Goshen.....₩ dos $21.00
Ladies' Friend.....₩ dos $15.00
Advance .....₩ dos $18.00
Supreme.....₩ dos $22.00

Lawn.

Thompson Mfg. Co.....30%

Tacks, Brads, &c.—

List October 19, 1889. Old established straight Weights Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued.....72½%
American, Tin'd and Cop'd. ..75%
Steel, Bright and Blued.....72½%
Steel, Tinned and Coppered 75%
Swedes Iron, Blued.....75%
Swedes Iron, Tinned.....75%
American Iron Tacks.....71½%
Swedes Iron Tacks—
S. S., Blued.....71%
S. S., Tinned.....74%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Gimp and Lace Tacks—
S. S., Blued 67½%
S. S., Tinned.....71%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Basket and Trimmers' Tacks—
Lanc.....61½%
S. S.....69½%
Hungarian Nails.....63½%
Common and Patent Brads....6%
Leathered Tacks.....20%
Brush Tacks.....63½%
Looking Glass Tacks.....35%
Picture-Frame Points.....43½%
Finishing Nails.....63½%
Trunk and Clout Nails—
Black.....67½%
Tinned or Coppered.....71%
Basket Nails 61½%
Chair Nails.....56½%
Cigar-Box Nails 53%
Tin Capped Nails.....50%

Miscellaneous—

Double Point .....90@90&10%
Wire Carpet Nails. .....60&10%
Plymouth Rock Steel Carpet Tacks..25%
Wire Brads and Nails, see Nails, Wire.
Steel-Wire Brads, R. & S. Mfg. Co.'s list .....50&10%

Extra discount 25&2%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—

Tin Case.....30@30&10%

Thimble Skeins—See Skeins.

Ties, Bale—See Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears Tinners' &c.

Tinware—
Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&25%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.
Coopers'—
Bradley's.....30%
Barton's.....30@30&5%
L. & I. J. White.....30&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%
Lumber.
Ring Peavies, "Blue Line"...₩ dos $30.00
Ring Peavies, Common.....₩ dos $18.00
Steel Socket Peavies.....₩ dos $21.00
Mall. Iron Socket Peavies....₩ dos $19.00
Cant Hooks, "Blue Line"..₩ dos $16.00
Cant Hooks, Common Finish..₩ dos $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ dos $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ dos $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ dos $12.00
Hand Spikes....₩ dos 6 ft., $16.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ dos., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ dos, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ dos, 12 ft., $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ dos, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ dos $18.00
Saw.
Atkins' Perfection.....₩ dos $12.00
Atkins' Excelsior.....₩ dos $6.00
Atkins' Giant.....₩ dos $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—
Game—
Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ₩ dos holes, 9@10¢
Mouse, Round Wire.....₩ dos $1.50 10¢
Mouse, Cage, Wire.....₩ dos $2.50, 10¢
Mouse, Catch-'em-alive....₩ ds $2.50 15¢
Mouse, Bonanza.....₩ dos $0.90@$1.00
Rat, Decoy.....₩ gr $10.00, 10¢
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 75¢; in full cases, ₩ dos. 60@65¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $15.00

Triers—
Butter and cheese.....25%

Trimmers, Spoke.
Bonney's.....₩ dos $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ dos. 55&10%
Douglas'.....₩ dos $9.00, 20%
Cincinnati.....25%

Trowels—
Lothrop's Brick and Plastering.....20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering..25@25&5%
Peace's Plastering.....25@45&5%
Clement & Maynard's.....20@20&5%
Rose's Brick.....16@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%
Cleves' Angle Trowel. ₩ gro. No 1. $36.; No. 2. $30.; No. 3. $15. net @ 10%

Trucks, Warehouse, &c.—
B. & L. Block Co.'s list, '83.....40%
Thompson Mfg. Co.....25%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ⅛ ℔ Balls.....	25¢	31¢
No. 12, ¼ and ⅛ ℔ Balls.....	22¢	30¢
No. 18, ¼ and ⅛ ℔ Balls.....	20¢	29¢
No. 24, ¼ and ⅛ ℔ Balls.....	20¢	29¢
No. 36, ¼ and ⅛ ℔ Balls.....	18¢	28¢
No. 264, Mattress, ¼ and ⅛ ℔ Balls.	50@54¢	
Chalk Line, Cotton, ⅛ ℔ Balls.....	25¢	
Mason Line, Linen, ⅛ ℔ Balls.....	55¢	
2-Ply Hemp, ¼ and ⅛ ℔ Balls (Spring Twine).....	15¼¢	
3-Ply Hemp, 1 ℔ Balls.....	16¢@16¼¢	
3-Ply Hemp, 1½ ℔ Balls.....	15¢@15¼¢	
Cotton Wrapping, 5 Balls to ℔ ..	15¢@16¢	
2, 3, 4 and 5-Ply Jute, ⅛ ℔ Balls.....	10¢	
Wool.....	6¼¢@6¾¢	
Paper.....	13¢@14¢	
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..	18¢	

Vises—
Solid Box.....50&10@50&10&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%
Massey Quick Action.....20 @ 25 %
Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....₩ dos $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Miscellaneous.
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%
Cincinnati.....25&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40 %

Wads—Price per M.

U.M.C.&W. R. A.—B. E., 11 up..	68¢
U.M.C.&W. R. A.—B. E., 9&10..	82¢
U.M.C.&W R. A.—B. E., 8.....	96¢
U.M.C.& W.R. A.—B. E., 7.....	$1.10
U.M.C.&W. R. A.—P. E., 11 up..	1.15
U.M.C.&W. R. A.—P. E., 9&10..	1.50
U.M.C.&W. R. A.—P. E., 8.....	1.70
U.M.C.&W.R.A.—P. E., 7.....	1.80
Eley's B. E., 11 up.....	$1.70@$1.75
Eley's P. E., 11@10.....	2.00@ 2.25

Dis. 20&2½

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.
Cast Iron, Hollow—
Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled-Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and Spans.....60@60&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40&5%
Enameled—
Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Ironclad Enameled Ware...dis 33⅓&10%
Kettles—
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each....	55¢	60¢		75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.....	$2.00	$2.25
Wash-Basins, 12 in.....	2.25	2.75
Keelers, 11¼ in.....		4.00
Cuspidors.....		3.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.
Indurated Fiber—35%
Spittoons, No. 2, ₩ dos.....$3.40
Basins, Ringed, ₩ dos., No. 2.....$3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$2.90
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$1.70
Liquid Measures, pt., qt., ½ qt. and funnell (4 pieces) ₩ set.....$1.50
See also *Pails*
Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.
Reed & Barton.
Meriden Britannia Co.
Simpson, Hall, Miller & Co.
Rogers & Brother
Hartford Silver Plate Co
William Rogers Mfg. Co.
} 40&5%
} 40&5&5%

Washers—

Size hole.....	5-16	⅜	½	⅝ to 1⅜
Washers.....	6	5	3.50	3

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₩ ℔ 3½¢
Steel.....₩ ℔ 3½¢

Weights, Sash—
Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.
8 in., $2.25; 10 in., $3.70; 12 in., $5.25

Wire and Wire Goods—
Iron—
Market.
Br. & Ann., Nos. 0 to 18...75&10@80%
Cop'd, Nos. 0 to 18.....75&5@75&10%
Galv., Nos. 0 to 18.....70@70&10
Tin'd, Tin'd list Nos. 0 to 18.70@70&10%
Stone,
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26..80&5%
Br. and Ann'd, Nos. 27 to 36...82½&5%
Tinned.....
Tinned Broom Wire 18 to 21, ₩ ℔...4½¢
Galvanized Fence, Nos. 8 and 9..70&10%
Brass, list Jan. 18, 1884.....25@33⅓%
Copper, list Jan. 18, 1884.....33⅓@40%
Annealed Wire on Spools.....60%
Malin'sSteel and Tin'd on Spools.....60%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to 8, 30%
Steel Music Wire, 12 to 30...80@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord see cord.
Bright Wire Goods—
Standard list.....80&20@'84
Wire Cloth and Netting.
Painted Screen Cloth, good quality ₩ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10@75%

Wire, Barb.—Prices unsettled. See Trade Report.

Wire Rope—See Rope, Wire.

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10&5%
Coes' Genuine.....50&5%
Coes' "Mechanics".....50&10&2%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard.....70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
} 75&10@
Lamson & Sessions' Agric'l..
} 75&10&10%
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....35%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₩ dos $4.00, 40%
Webster's Pat. Combination.....35%
Boardman's.....20&10%
Always Ready.....35&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....50&2%
Acme, Nickeled.....40&2%
Hercules.....70@70&3%
Walker's.....50&2%
Diamond Steel.....55&2%
Cincinnati Brace Wrenches.....25&10%
Tafts' Vise Wrench.....55&10&3%

Wringers, Clothes—
Am. Wringer Co.'s list, July 1, 92...2% cash
Colby Wringer Co., list Sept. 1, '91, 2% cash
Lovell Mfg Co., list Jan 1, 1892, 2 % cash
Peerless Mfg. Co., list Feb., 1892..2% cash

Wrought Goods—
Staples, Hooks, &c., list March 17, 1892, 80&25%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw...per gal.	42 @	..
Linseed, City, boiled.....	45 @	..
Linseed, Western, raw.....	41 @	..
Lard, City, Extra Winter..	61 @	..
Lard, City, Prime.....	60 @	61
Lard, City, Extra No. 1.....	44 @	45
Lard, City. No. 1.....	40 @	42
Lard, Western, prime.....	59 @	60
Cotton-seed, Crude, prime,	29 @	29½
Cotton-seed, Crude, off grades.....	26½@	28
Cotton-seed, Summer Yellow, prime.....	32½@	33
Cotton-seed, Summer Yellow, off grades.....	30 @	31
Sperm, Crude.....	68 @	..
Sperm, Natural Spring.....	67 @	70
Sperm, Bleached Spring....	72 @	75
Sperm, Natural Winter.....	73 @	76
Sperm, Bleached Winter...	78 @	81
Whale, Crude.....	.. @	45
Whale, Natural Winter.....	54 @	55
Whale, Bleached Winter....	57 @	58
Whale, Extra Bleached.....	59 @	60
Sea Elephant, Bleached Winter.....	62 @	63
Menhaden, Crude, Sound..	30 @	31
Menhaden, Crude, Southern	.. @	..
Menhaden, Light Pressed..	37 @	..
Menhaden, Bleached W'ter.	38 @	..
Menhaden, Extra Bleached	40 @	42
Tallow, City, prime.....	44 @	45
Tallow, Western, prime....	42½@	43
Cocoanut, Ceylon.....	5¼@	5½
Cocoanut, Cochin.....	6 @	6¼
Cod, Domestic	38 @	40
Cod, Foreign.....	43 @	45
Red Elaine.....	34 @	36
Red Saponified.....₩ ℔	4½@	5
Bank.....per gal	35 @	36
Straits.....	36 @	37
Olive, Italian, bbls.....	60 @	62
Neatsfoot, prime.....	50 @	60
Palm, prime, Lagos....₩ ℔	6 @	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	7 @	7¼
Black, 29 gravity, 15 cold test.....	7¼@	8
Black, 29 gravity, summer.	6 @	6¼
Cylinder light filtered. ...	14 @	16
Cylinder, dark, filtered	10 @	13
Paraffine, 23¼ @ 24 gravity.	11½@	12
Paraffine, 25 gravity.....	10½@	11
Paraffine, 28 gravity.....	8 @	8½
Paraffine, red, 23½@24 gr'ty	10½ @	11

Paints and Colors.

Barytes, Foreign, ₩ ton.	$22.00 @	$24.00
Barytes, Amer. floated...	20.00 @	25.00
Barytes, Amer. No. 1....	15.00 @	17.00
Barytes, Amer. No. 2....	13.00 @	16.00
Barytes, Amer., No. 3....	11.00 @	12.00
Blue, Celestial.....₩ ℔	6 @	8
Blue, Chinese	40 @	50
Blue Prussian.....	25 @	40
Blue, Ultramarine	8 @	25
Brown, Spanish	½@	1
Brown, Vandyke, Amer..	3 @	3¼
Brown, Vandyke, English	6 @	8
Carmine, No. 40, in bulk.	3.10 @	..
Carmine, No. 40, in boxes or barrels	3.20 @	..
Carmine, No. 40, in ounce bottles.....	4.20 @	..
Chalk, in bulk.... ₩ ton.		3.00
Chalk, in bbls..₩ 100 ℔.	33 @	40
China Clay, English.... ₩ ton.	12.00 @	18.00
Cobalt Oxide, prep'd....	9.00 @	11.00
Cobalt Oxide, black.... lots 100 ℔	2.50 @	....
Cobalt, Oxide, black..... less 100 ℔	2.65 @	2.90
Green, Paris, in bulk.....	13 @	15½
Green Paris, 170 @ 175 ℔ kegs.....	14 @	16
Green, Paris, small pack.	15½ @	12
Green, Chrome, ordinary	6 @	12
Green, Chrome, pure....	22 @	25
Lead, Eng., B.B. white....	8½@	10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔...	7¼ @	7¾
Kegs, lots 500 ℔ to 5 tons....	6¾ @	7
Kegs, lots 5 tons to 13 tons..	6½ @	6¾
Kegs, lots 13 tons and over..	6¼ @	6½
Lead White in oil 25 ℔ tin pails add to keg price.....	@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price ...	@	¼
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.	@	½
Lead, Red, bbls. and ½ bbls....	6¾ @	7¼
Lead Red, kegs.....	6¾ @	7¼
Litharge, kegs.....	6¼ @	7¼
Litharge, bbls. and ½ bbls....	6¼ @	7¼

Terms, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 3½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.85 @	1½
Ocher, French Washed....	1½@	2½
Ocher, German Washed...	1½@	3
Ocher, American.....	½@	1½
Orange Mineral, English...	8½@	9
Orange Mineral, French....	10 @	10½
Orange Mineral, German ..	8½@	09
Orange Mineral, American.	8½@	8¾
Paris White, English Cliff-stone.....	1.00 @	1.15
Paris White, American....	70 @	75
Red, Indian, English.....	5½@	7
Red, Indian, American....	2 @	6½
Red, Turkey.....	9 @	14
Red, Tuscan	9 @	11
Red, Venetian, American.. ₩ 100 ℔.	1.00 @	1.10
Red, Venetian, English....	1.30 @	1.35
Sienna, Italian, Burnt and Powd. ₩ ℔	4 @	5
Sienna, Ital., Burnt Lumps	1¾@	3½
Sienna, Ital., Raw, Powd..	4½@	5½
Sienna, Ital., Raw Lumps..	1¾@	3½
Sienna, American, Raw....	1¾@	1¾
Sienna, American, Burnt and Powdered.....	1¾@	1¾
Talc, French.....	1¼@	1½
Talc, American.....	01¼@	1¼
Terra Alba, Fr'ch. ₩ 100 ℔	75 @	80
Terra Alba, English	70 @	75
Terra Alba, American No. 1	70 @	75
Terra Alba, American No. 2	45 @	50
Umber, Turkey, Bnt. and Powd..... ₩ ℔	3½@	4
Umber, Turkey Bnt. Ln	2½@	3
Umber, Turkey, Raw and Powdered.....	3½@	..
Umber Turkey, R'w Lmps	2½@	2¾
Umber, Turkey, Bnt. Amer.	1½@	1¾
Umber, Turkey, R'w Amer.	1½@	1¾
Yellow, Chrome.....	10 @	20
Vermilion Americ. Lead..	11½@	17
Vermilion, Quicks'er, bulk.	57 @	..
Vermilion, Quicks'er, bags.	58 @	..
Vermilion Quicksilver, smaller pkgs.....	62 @	..
Vermilion English Import	85 @	90
Vermilion, Imitation, Eng.	8 @	35
Vermilion, Trieste...	90 @	92½
Vermilion, Chinese.....	92½@	96
Whiting Common. ₩ 100 ℔	4 @	45
Whiting, Gilders'.....	50 @	60
Zinc, American, dry.... ₩ ℔	4½@	..
Zinc, French, Red Seal....	7½ @	..
Zinc, French, Green Seal..	9 @	..
Zinc, French, V. M. X....	.. @	7
Zinc, Antwerp, Red Seal..	7½ @	..
Zinc, Antwerp, Green Seal	7¾ @	..
Zinc, German, L. Z. O....	.. @	6¾

Zinc, V M. in Poppy Oil, G. Seal, lots of 1 ton and over..... 10¾@ 11¼
lots less than 1 ton ..... 11 @ 11¾

Zinc, V. M. in Poppy Oil, Red Seal..... 10 @ ..
lots of 1 ton and over.... 10 @ 10¼
Lots of less than 1 ton.... 10¼@ 10¾

Discounts.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Black, Drop, Frankfort	25 @	30
Black, Drop, English.....	12 @	15
Black, Drop, Domestic	7 @	10
Black, Lampblack, Best....	20 @	35
Black, Lampblack, Common	7 @	15
Black, Ivory.....	8 @	15
Blue, Chinese.....	35 @	40
Blue, Prussian.....	20 @	45
Blue, Ultramarine.....	12 @	15
Brown, Vandyke.....	7 @	12
Green, Chrome.....	8 @	13
Green, Paris.....	16 @	18½
Sienna, Raw.....	7 @	14
Sienna, Burnt.....	7 @	14
Umber Raw.....	7 @	10
Umber, Burnt	7 @	10

Putty.

In barrels and ½ bbls....	.01½@	.01¾
In tubs.....	.01½@	.01¾
In tin cans.....	.01½@	.02¼
In bladders.....	.01½@	.02¼

Spirits Turpentine.

In regular bbls.....	.. @	30
In machine bbls.....	.. @	31

Glue.

Low Grade.....₩ ℔	8 @	10
Cabinet.....	12 @	14
Medium White.....	13 @	15
Extra White.....	17 @	20
French.....	10 @	22
English.....	10 @	15
Irish.....	10 @	..

CURRENT METAL PRICES.

JULY 20, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
⅜ to 2 in. round and square.. 1 to 6 in. x ⅜ to 1 in....	₩ lb 1.90 @ 2.00¢
Refined Iron:	
⅜ to 2 in. round and square. 1 to 4 in. x ⅜ to 1½ in.... 4½ to 6 in. x ⅜ to 1 in.	₩ lb 2.00 @ 2.10¢
1 to 6 in. x ¼ and 5-16	₩ lb 2.20 @ 2.30¢
Rods—⅜ and 11-16 round and sq.	₩ lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12	₩ lb 2.30 @ 2.40¢
"Burden Best" Iron, base price	₩ lb 3.00¢
Burden's "H. B. & S." Iron, base price	₩ lb 2.80¢
"Ulster"	₩ lb 3.00¢
Norway Bars	3.75 @ 4.00¢
Norway Shapes	4.50 @ 5.00¢

Merchant Steel from Store.

	Per pound
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¼¢
Best Cast Steel, base price in small lots.	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb 3 @	3⅜¢
17 to 20	₩ lb 3½ @ ...	3⅜¢
21 to 24	₩ lb 3¼ @	3⅜¢
25 and 26	₩ lb 3⅜ @ ...	3⅜¢
27	₩ lb 3½ @	3⅞¢
28	₩ lb 3⅝ @	4 ¢
American B. B.	₩ lb 4¢ @ 4½¢	

Galvanized Sheet Iron.

	B. B.	2d qual
Nos. 10 to 16	₩ lb 4.20¢	4 ¢
17 to 22	₩ lb 4.60¢	4.30¢
23 to 24	₩ lb 4 90¢	4.70¢
25 to 26	₩ lb 5.30¢	5 ¢
27	₩ lb 5.60¢	5.30¢
28	₩ lb 6 ¢	5.70¢
29 to 30	₩ lb 7 ¢	6.70¢
Genuine Russia, according to assortment	₩ lb 11¼¢ @ 11½¢	
Patent Planished	₩ lb A, 10¢; B, 9¢	
Craig Polished Sheet Steel	₩ lb, 8½¢	

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 15 ¢
Blister, 1st quality	₩ lb 12 ¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15 ¢
2d quality	₩ lb 14 ¢
3d quality	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 48 ¢
" " "Titanic"	₩ lb 20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs	23¢
Straits, Pigs	23¢
Straits in Bars	25¢

Tin Plates.

Duty: 2.2 cents per pound.

Charcoal Plates.—Bright.

Guaranteed Plates command special prices, according to quality. Per box.

Melyn and Calland Grade.	IC, 10 x14..	@	$6.50
" " "	IC, 12 x12..	@	6.75
" " "	IC, 14 x20..	@	6.50
" " "	IC, 20 x28..	@	13.00
" " "	IX, 10 x14..	@	8.50
" " "	IX, 12 x12..	@	8.75
" " "	IX, 14 x20..	@	8.50
" " "	IX, 20 x28..	@	17.00
" " "	DC, 12½x17..	@	6.00
" " "	DX 12½x17..	@	8.00
Allaway Grade	IC, 10 x14..	@	6.00
" "	IC, 12 x12..	@	6.25
" "	IC, 14 x20..	@	6.00
" "	IC, 20 x28..	@	12.00
" "	IX, 10 x14..	@	7.50
" "	IX, 12 x12..	@	7.75
" "	IX, 14 x20..	@	7.50
" "	IX, 20 x28..	@	15.00
" "	DC, 12½x17..	@	5.50
" "	DX, 12½x17..	@	7.00

Coke Plates.—Bright.

Steel Coke.—IC,	10 x 14, 14 x 20..	@	$5.70
	10 x 20..	@	8.50
	20 x 28..	@	11.50
	IX, 10 x 14, 14 x 20..	@	7.00
BV Grade.—IC,	10 x 14, 14 x 20..	@	5.75

Charcoal Plates.—Terne.

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC,	14 x 20	@	$5.75
	20 x 28	@	11.00
	IX, 14 x 20	@	6.50
	20 x 28	@	13.00
Abecarne Grade.—IC,	14 x 20	@	5 65
	20 x 28	@	11.00
	IX 14 x 20	@	6 50
	20 x 28	@	13 00

Tin Boiler Plates.

IXX, 14 x 26	112 sheets	@ $13.38
CXX, 14 x 28	112 sheets	@ 14.00
IXX 14 x 31	112 sheets	@ 16.00

Copper.

Duty: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot

Lake	@ 12¾¢
Ansonia Grade Arizona	@ 11¾¢
Ansonia Grade Casting	@ 11¼¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, May 19, 1892. Subject to a discount of 10 % @ 20 %, according to size of order.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	22	22	23	24	25	28	30
30		72	22	22	22	23	25	27	31	....
36	96		22	22	23	24	26	30	33	....
36		96	22	22	23	25	27	31	35	....
48	96		22	22	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	26	29	34	....	....	....
60		96	23	23	28	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

Bolt Copper, ⅝ inch diameter and over, per pound. 22¢

Circles, Segments and Pattern Sheets, 60 in. diameter and less, 3¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Circles, Segments and Pattern Sheets, over 60 in. diameter, up to 96 in. diameter inclusive, 4¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Cir les, Segments and Pattern Sheets, over 96 in diameter, 5¢ ₩ lb advance over prices of Sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.

All Polished Copper, over 20 in. wide, 2¢ ₩ lb advance over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms

10 % @ 20 % discount, according to size of order.

Copper Wash Bowl Bottoms.

Tinned ₩ lb 34¢, 10% @ 20 %

Tinning.

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each	12¢
Tinning sheets on one side, other sizes, per square foot	2½¢
For tinning both sides double the above prices.	

Planished Brass and Copper.

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ lb
14 oz.	25¢ ₩ lb
12 oz.	27¢ ₩ lb

Seamless Brass Tubes.

Net.

July, 6, 1892.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1⅛
8-14	6-12	32	28	25	24	23	22	19
15	13	33	29	26	25	24	23	20
16	14	34	29	27	26	25	24	20
17	15	35	30	28	26	26	25	21
18	16	37	31	29	27	26	25	22
19	17	38	32	30	29	28	27	24
20	18-19	39	34	32	31	30	29	26
21	20	41	36	34	33	32	31	29
22	21	43	37	36	34	33	32	31
23	22	45	39	37	36	35	34	34
24	23	48	41	39	38	36	35	36
25	24	51	44	41	40	39	38	40

Copper, Bronze and Gilding Tube, 3¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	42¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass.

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2 / 10	in. 10 / 12	in. 12 / 14	in. 14 / 16	in. 16 / 18	in. 18 / 20	in. 20 / 22	in. 22 / 24
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31	.32
Nos. 21, 22, 23 and 24	.22	.23	.24	.26	.28	.30	.32	.34
Nos. 25 and 26	.22½	.23½	.24½	.27	.29	.31	.33	.35
Nos. 27 and 28	.23	.24	.25	.28	.30	.32	.34	.36

Common High Brass: Wider than and including	in. 24 / 26	in. 26 / 28	in. 28 / 30	in. 30 / 32	in. 32 / 34	in. 34 / 36	in. 36 / 38	in. 38 / 40
To No. 20, inclusive	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24	.37	.40	.43	.47	.51	.56	.61	.66
Nos. 25 and 26	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.39	.42	.45	.49	.53	.58	.65	.75

Discount from List 10 % to 25 %.

Brass and Copper Wire.

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0.26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 " " 20	.24	.26	.28	.32
No. 21, or 0.032 diam.	.25	.27	.29	.33

Discount 10 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0.26	$0.28	$0.30	$0.34
No. 23	.28	.30	.32	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.98
No. 35	.70	.72	.74	1.30
No. 36	.76	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.32	1.34	2.00
No. 39	2.00	2.02	2.00	3.25
No. 40	2.60	2.62	2.60	5.75

— % discount.

Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs.

	Per lb.		Per lb.
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 13	58¢
No. 7	49¢	No. 15	60¢
No. 8	50¢	No. 14	66¢
No. 9	52¢	No 16	70¢
No. 10	54¢		

60 % @ 5 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to ⅜ inch inclusive	18¢ ₩ lb
Over ⅜ to 3½ inches inclusive	17¢ ₩ lb
Over 3½ to 5 inches inclusive	18¢ ₩ lb

Piston Rods, Finished True, Smooth and Straight.

¼ to ⅜ inch inclusive	19¢ ₩ lb
Over ⅜ to 2 inches inclusive	18¢ ₩ lb
Over 2 to 3½ inches inc usive	19¢ ₩ lb
Over 3½ to 5 inches inclusive	2. ¢ ₩ lb

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	5¼¢
Bertha (pure)	8¼¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks	6¾¢
Per lb	7 ¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets. 2½¢ ₩ lb.

American Pig	4½¢ @ ..
Bar	5 ¢
Pipe, subject to discount 20 %	6¼¢
Tin-Lined Pipe, subject to discount 20 %	15¢
Block Tin Pipes, subject to discount 20 %	37½¢
Sheet, subject to discount 20 %	¢

Old Lead in exchange, 3½¢ ₩ lb.

Solder.

½ @ ½ (Guaranteed)	12¾¢
No. 1	11¾¢@12¢
Market, ½ @ ½	13¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ lb 15 @ 15½¢
Hallett's	" .... @ 12 ¢

ALUMINUM.

Prices Per Ton.

Duty: 15 cents per pound.

Over 98 % pure	₩ lb .75
94 % @ 98 % pure	₩ lb .65

Old Metals.

Prices Paid in New York.

Heavy Copper	₩ lb 10 ¢
Light and Tinned Copper	₩ lb 9 ¢
Heavy Brass	₩ lb 7 ¢
Light Brass	₩ lb 6 ¢
Lead	₩ lb 3½¢
Tea Lead	₩ lb 3½¢
Zinc	₩ lb 2½¢
No. 1 Pewter	₩ lb 14 ¢
No 2 Pewter	₩ lb 7 ¢
Wrought Scrap Iron	₩ gross ton $17.00
Heavy Cast Scrap	₩ gross ton 10.00
Stove Plate Scrap	₩ gross ton 7.00
Burnt Iron	₩ gross ton 5.00